DOCUMENT RESUME

ED 219 314 SO 014 163

TITLE	Education in China.
INSTITUTION	Ministry of Education (Republic of China).
PUB DATE	81
NOTE	196p.; Photographs may not reproduce clearly in microfiche or paper copy.
EDRS PRICE	MF01/PC08 Plus Postage.
DESCRIPTORS	Adult Education; Agricultural Education; *Comparative Education; Deafness; Educational History; *Educational Practices; *Educational Trends; Education Work Relationship; Elementary Secondary Education; Foreign Countries; Government Role; Government School Relationship; Higher Education; Medical Education; Medical Research; Postsecondary Education; *Rural Education; School Statistics; Teacher Education; Teaching Methods; Vocational Education
IDENTIFIERS	*China

ABSTRACT

This book provides a comprehensive view of education in the People's Republic of China today. Divided into four sections, the bulk of the book's material is covered in the first section, "Education in China." Section 1 begins with a discussion of educational achievements in China, the present educational situation and basic conditions in 1980, and government policies and goals directed toward enabling education to serve Socialist modernization better. Statistical charts are included on the number of students, minority students, and females at all levels enrolled in the schools from 1949 to 1980. Charts also provide information on the number of schools, teachers, and graduates in China. Next, the discussion focuses on popularizing primary education in two counties in China--Yanguan and Taojiang. The last part of section 1 focuses on integrating education with productive labor. With this emphasis in mind, the topics discussed deal with research and teaching in a medical college; an agricultural university which combines teaching scientific research and production; the training of biology teachers for secondary schools; a middle school where the classroom is a factory; vocational schools in industrial areas; and an agricultural middle school. Section 2 describes China's secondary vocational (specialized) education, which is now an important part of education in China. Sections 3 and 4 provide information on adult education in China and on education for the blind and deaf-mutes. (NE)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED219314

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION
CENTER (ERIC)
☐ This document has been reproduced as received from the person or organization originating it.
X Minor changes have been made to improve reproduction quality.
• Points of view or opinions stated in this document do not necessarily represent official NIE position or policy.

EDUCATION IN CHINA

(I)

Compiled by the *Education in China* Group of
the Ministry of Education, People's Republic of China

BEIJING 1981

LB 014 163

Education in China

1. New China's Great Achievements in Education

EDUCATION in the People's Republic of China started out with the weak foundation of the economically backward and educationally underdeveloped old China. In the early period of the People's Republic, efforts were made to reform that which was outdated in the educational legacy inherited from the old China. Over the years, education has made tremendous progress along with swift economic development under the leadership of the Chinese Communist Party and the People's Government. By now, the higher educational institutions have trained 3,180,000, and the secondary vocational schools 5,800,000, specialized personnel for the state. With 10 to 20 years' work experience under their belts, the university and secondary vocational school graduates of the fifties and sixties in particular have become the backbones in the building of a modernized socialist China as well as the base of the country's intellectual force. Since the founding of the People's Republic, 52,500,000 students have graduated from senior middle schools, 157,100,000 from junior middle schools and 325,200,000 from primary schools. The agricultural middle schools, secondary vocational schools and ordinary middle and primary schools have provided the state with a reserve work force hundreds of millions strong and with both socialist consciousness and culture. All this has effectively guaranteed the expansion of national construction in all fields.

Education in China has undergone deep changes and continuous improvement to meet the needs of socialist revolution and construction. Shortly after the birth of the new China, the old public and private schools were taken over and foreign-financed missionary schools were remodelled, dissolved or merged with other schools. The old educational system was abolished and the policy of making education accessible to workers and peasants implemented. Communist Party leadership was established in schools, an ideological-political work system was set up, the old Kuomintang party indoctrination courses were cancelled, and Marxist-Leninist courses were added. Ideological education was carried out among the teaching staff, and patriotic intellectuals were encouraged to serve the people. Beginning from 1952, necessary changes were made to some of the universities or their departments, and course content and teaching methods were improved. College students were enrolled under a unified plan and upon completion of their education they were assigned jobs by the government. Thus higher education was brought into line with the state plan. Basing itself on the experience in running education in the old Liberated Areas while at the same time drawing upon the experience of other countries, the government worked out for

Beijing University teachers have successfully applied optical fibre communication in telephone operation. Founded in 1898, Beijing University is one of China's comprehensive universities of liberal arts and science.

The 80-some-year-old well-known chemistry professor Huang Ziqing of Beijing University gives a lecture to post-graduates.

schools at all levels teaching programmes and syllabi suited to the conditions of China and gave guidance to the compiling of new textbooks. After 1957, the schools at all levels put into practice the policy of orienting education to proletarian politics, integrating education with productive labour and enabling everyone who received an education to develop morally, intellectually and physically and become a worker with both socialist consciousness and culture. Efforts were made to explore the ways and means of setting up a socialist educational system characteristic of China. The experience in running schools of diverse forms was affirmed and enriched. In 1961, a set of regulations were drawn up on the basis of the experience gained in educational work since Liberation, enabling education to develop along sound lines. These included Tentative Regulations Concerning the Work of Higher Educational Institutions Directly Under the Ministry of Education, Tentative Regulations Concerning the Work of Full-Time Middle Schools, and Tentative Regulations Concerning the Work of Full-Time Primary Schools.

In the 17 years 1949-65, a total of 1,500,000 graduates left China's full-time universities, 8.4 times that in 20 pre-Liberation years. In the same period, China turned out 16,000 post-graduates, 200,000 spare-time and correspondence university graduates and 2,960,000 secondary vocational school graduates.

During the 10 turbulent years of the "cultural revolution", education was adversely affected and an entire generation of young people fell victim to the marked deterioration in educational standards. Things have begun to look up after rectification in the four years following the downfall of the "Gang of Four".

The main experience of the past 32 years is as follows:

(1) Development in socialist education must be in concert with development in economic construction, that is, a planned, proportionate development. To achieve this, while education must be suited to the growth of the national economy, necessary material conditions for educational development must be guaranteed. Education must not be considered as a non-profit undertaking, and proper ratio must be maintained the better to meet the needs of socialist construction and educational development. At the same time, it is necessary to avoid the tendency to concentrate on quantity to the neglect of quality. Quantity should be increased with guaranteed quality as the prerequisite.

(2) Socialist schools must persist in the principle of all-round moral, intellectual and physical development and the principle of being "red and expert". They should enable students to become workers with both socialist consciousness and culture, and builders of a modernized socialist China, and strive continuously to improve their educational standards.

(3) The Party's policy towards intellectuals must be implemented to the letter. Intellectuals must enjoy the Party's trust, concern and help, be encouraged to become "red and expert" and play their role to the full.

(4) Party and government leadership in education must be persisted in and improved continuously and the law governing education must be followed.

2. Present Situation and Basic Conditions in 1980

Significant changes have occurred in education since the downfall of the "Gang of Four", especially since the Third Plenary Session of the Eleventh Party Central Committee.

(1) The Party and government pay attention to education. The Fifth Plenary Session of the Eleventh Party Central Committee decided that prompt ef-

Beijing University has tried out the setting of Chinese characters by computer.

Teaching with electrical audio-visual aids for students of foreign languages at Beijing University.

forts be made to work out a plan and structure for education that are suited to the needs of economic development. The government has adopted decisions and issued directives concerning pressing problems in education. The masses of faculty and students have continued their efforts gradually to liquidate, ideologically and theoretically, the influence of Lin Biao and the "Gang of Four". Erroneous policies towards intellectuals and cadres have been changed. The leading bodies in schools of all levels and types have been readjusted or strengthened. Education in the four basic principles — persisting in the socialist road, the dictatorship of the proletariat, Communist Party leadership, and Marxism-Leninism-Mao Zedong Thought — and education in love for the motherland, the people, physical labour, science, and public property are carried out among the students. The young people are also encouraged to foster a lofty revolutionary ideal and communist outlook, develop the style of plain living and hard struggle, observe discipline, and persist in the "red and expert" direction.

(2) Higher educational institutions have been restored or expanded, and the level of teaching and scientific research has improved steadily. In 1977, the practice of enrolling college students through examination and under a unified plan was restored. This has given a great impetus to the enthusiasm of the students and enhanced the standards of the new students of the higher educational institutions. Recent years have witnessed an increase in the number of both higher educational institutions and their students. In 1980, there were 675 such institutions, and 15 more were in preparation. In the same year, 146,600 graduates left the higher educational institutions, and 281,200 new students were admitted, bringing the total number of university students up to 1,143,700, a 12.1 per cent increase over 1979. The admittance of 2,964 students to graduate schools brought the total number of postgraduates up to 17,728. The total number of the higher educational institution faculty was 631,900, of which 246,900 were full-time teachers, including 4,212 professors, 13,788 associate professors and 119,102 lecturers. To meet the needs of national construction, the enrollment of students of finance, economics, law and other weak disciplines was increased, changing the ratio between subjects in the higher educational institutions. The enrollment of the colleges of finance and economics in the total enrollment of higher educational institutions increased from 1.1 per cent in the past to 4.3 per cent in 1980, and that of teacher training colleges from 20.3 per cent in 1976 to 31.7 per cent in 1980. Old scientific research departments in the higher educational institutions were restored and new ones added. In scientific research, a number of projects have attained fairly high levels or are of high economic value.

(3) The training of secondary specialized personnel is being strengthened. China's socialist modernization programme needs an increasing number of secondary specialized personnel. In 1980, 410,300 graduates left the country's 3,069 secondary specialized schools, which had a total number of 1,243,400 students, 3.7 per cent more than in 1979. Of these, 2,052 were technical schools, with 201,200 graduates, and a total of 761,300 students, or 6.6 per cent more than in 1979; 1,017 were secondary teacher training schools, with 209,100 graduates, and a total of 482,100 students, approximately the 1979 figure. The number of secondary specialized school faculty was 298,400, or 35,900 more than in 1979. Of these, 128,600 were full-time teachers, 15,800 more than in 1979.

(4) The geographical distribution of middle schools is being readjusted and attention is given to the expansion of vocational and technical education. During the 10-year rampage, practically all the secondary vocational schools and agricultural middle schools were dissolved while ordinary senior middle schools were blindly expanded, adversely

Inside one of the new buildings in Qinghua University.

Qinghua University's miniature processor laboratory. Qinghua, founded in 1911, is one of the country's famous science and engineering universities.

affecting elementary education and the standards of middle schools. In the past two years, much has been done to readjust the geographical distribution of middle schools, restrict the enrollment of senior middle schools and strengthen those middle schools that cannot guarantee standards. In 1980, there were 118,400 ordinary middle schools, 23,700 less than in 1979, with a total of 55,081,060 students, 3,734,000 less than in 1979. Of these, 31,300 were senior middle schools, with a total of 9,697,900 students, 2,987,000 less than in 1979, or a drop of 23.5 per cent. There were 87,100 junior middle schools, with a total of 45,382,900 students, 747,000 less than in 1979, or a drop of 1.6 per cent. The faculty of ordinary middle schools numbered 3,897,100, of whom 3,019,700 were full-time teachers. While ordinary senior middle schools were cut down, secondary vocational schools, agricultural middle schools, and vocational classes and courses were opened (the last by ordinary middle schools). In 1980, the 3,314 vocational and agricultural middle schools enrolled 307,200 new students, bringing the total number of students to 453,600, or 93.1 per cent more than in 1979. The number of secondary vocational schools rose from 31 in 1979 to 390, with a total of 133,600 students. The number of agricultural middle schools was 2,924, with a total of 320,000 students. The number of vocational and agricultural middle school faculty was 40,800, of which 23,200 were full-time teachers.

(5) Energetic efforts are being made to popularize elementary education in rural areas. At present, 93 per cent of the country's school-age children go to school, but only 60 per cent of the children in rural areas complete the 5-year primary education. In 1980, the Party and government decided that elementary education be basically popularized throughout the country in the eighties. In the light of the economic, cultural and other conditions in their own areas, local authorities are working out plans to popularize primary education stage by stage and area by area. For the purpose of popularization, adjustments have been made to the geographical distribution of rural primary schools to save manpower and material resources and to make it possible for children to go to their nearest schools. While attention is paid to running full-time schools well, schools of diverse forms have been opened to make education available to more of the school-age children. These include part-time schools, schools run on every-other-day basis and mobile schools. In 1980, China had 917,300 primary schools with a total of 146,270,000 pupils, and a faculty of 6,054,100, of whom 5,499,400 were full-time teachers.

(6) Pre-school education and education for the blind and deaf-mutes are the concern of the government. The Regulations Concerning the Work of Urban Kindergartens drawn up in 1979 clearly define the tasks and goal of kindergartens. An increasing number of nurseries and kindergartens have been set up by educational departments, government institutions, army units, industrial enterprises and rural people's communes. In 1980, there were 170,000 nurseries and kindergartens taking care of 11,507,700 children, and 292 schools for the blind and deaf-mutes with a total of 33,100 students.

(7) Importance is attached to education for minority nationalities. Education for minority nationalities has developed rapidly since the founding of the People's Republic. This is true not only of both primary and secondary education but also of higher education, which boasts 10 institutes for nationalities, forming a fairly complete educational system for minority peoples. The number of minority students in 1980 was 9,700,000, 9.8 times the 1951 figure. Of these, 42,900 were university students, 84,000 secondary specialized school students, 2,007,500 middle school students and 7,522,200 primary school pupils. Proceeding from the actual condition of the minority peoples in their own areas, the provinces and autonomous regions concerned, mindful of standards and practical results, have

Teachers of the Department of Architecture, Qinghua University, discuss a project.

The experimental atomic reactor building of the Nuclear Technology Research Institute of Qinghua University, Beijing.

concentrated on running well a number of public secondary and elementary schools for nationalities, and restored and set up many boarding schools. These schools have the priority in obtaining funds, experienced teachers and facilities. Course content and teaching methods are suited to the characteristics of the minorities. While minority students are encouraged to learn the Han language, their own spoken and written languages are employed in teaching. To train minority personnel for national construction, four of the country's key universities opened special classes for minority students in 1980. To give special training to minority students, similar classes and preparatory courses have also been opened by some of the higher educational institutions in areas inhabited by minority nationalities. The national autonomous regions and the provinces where minority people are populous have decided to run well the normal colleges for nationalities to train qualified teachers to serve minority peoples.

(8) Adult education has made rapid progress. The open universities on television in 1980 had 324,400 students. Liberal arts courses will soon be added to these universities. At present, there are 1,554,100 students in workers' and peasants' higher educational establishments, 8,044,700 students in workers' and peasants' secondary educational establishments, and 16,461,000 students in workers' and peasants' spare-time primary educational establishments. In 1980, 5,388,000 people became literate.

(9) Energetic efforts have been made to exchange students to develop international academic interchange. In the past three years, China has sent 5,609 students to 46 countries and received 1,276 students from 79 countries. It has invited large numbers of specialists and scholars from foreign countries to give lectures, and sent many educational delegations and investigation groups abroad on fact-finding tours or to attend international academic conferences. China has strengthened its friendly ties with, and learned a lot from, the educational workers of other countries since it was admitted into the UNESCO.

(10) The tentative regulations concerning the work of universities, secondary and primary schools are being trial-implemented, and new rules of good conduct for secondary students and primary pupils have been laid down. All these have helped restore order in schools. The regulations on the giving of scholastic degrees have been promulgated and put into trial practice. This will have far-reaching effects on China's educational and scientific developments.

(11) Energetic efforts are made to compile teaching materials and construct school buildings and laboratories. Tentative textbooks for full-time secondary and primary schools (combined length of study: ten years) have been published for trial use. Experience gained will pave the way for their official publication. Large quantities of new textbooks for university courses in liberal arts, science, engineering, agriculture and medical science have been published, including the textbooks of 523 titles in science, engineering and technical foundation courses published by the end of 1980 under the direct guidance of the Ministry of Education. Most of the courses offered in secondary specialized schools have their own textbooks. In capital construction in higher educational institutions, a total of 3,250,000 square metres of floor space was completed in 1980, the peak year since Liberation. This basically ensured the needs of newly admitted students and improved the housing of part of the faculty. There has been increase in the facilities and equipment of the schools of all levels. Many of the laboratories of foundation courses in higher educational institutions have been restored. Some of the key universities have begun to use electrical audio-visual aids in teaching. Slides and other electrical aids are also used in part of the secondary and primary schools.

(12) Training of teachers for schools of all types and levels has been reinforced. While higher and

The high-tension electric equipment laboratory of the Central China Engineering Institute.

Students of the Department of Party History of Beijing's China People's University interview the boatmen of the Ganjiang River, Jiangxi Province.

secondary teacher training institutions have been restored or newly built, teacher refresher schools have also been set up by provincial, prefectural and county authorities for spare-time studies or in-service training to raise teachers' political, cultural and vocational levels. In 1980, 774,400 middle school teachers, or 25.6 per cent of the total, and 1,531,200 primary school teachers, or 27.8 per eent of the total, attended these schools. In 1980, the government reiterated that the basic task of the teacher training schools of all levels was to train qualified teachers. Teachers were required to study hard and acquire wide knowledge, conscientiously study the science of education, cherish fine moral qualities, and be exemplary in their conduct. In 1980, the faculty in schools of all levels and types numbered 11,540,000, of which 9,333,300 were full-time teachers.

The above facts show that the tremendous achievements in education have created favourable conditions for its future development.

3. Continue to Implement the Four-Word Policy to Enable Education to Serve Socialist Modernization Better

At present, the various branches of the national economy are continuing to implement the four-word policy of readjusting, restructuring, consolidating and improving the national economy. Educational work should likewise be planned in accordance with this policy.

Education badly needs strengthening, in view of the overall situation in national construction. In the period of readjusting the national economy, not only the ratio within economy itself but also the ratio between education and economy should be well adjusted. Attention should be given to the discovering and training of qualified personnel to suit education gradually to economic development. Educational investments, which used to be low, should be given an important place in both the perspective and yearly economic development plans so as to increase these investments steadily to meet the requirements for educational development. It is also necessary to adjust well the ratios within educational work itself, including the ratio between educational projects of all levels and types. Emphasis should be placed on improving the educational standards of the schools of all levels and types. At the same time, the weak links in educational work should be strengthened. Spare-time education of diverse forms is much weaker than full-time education and should be greatly strengthened. In particular, education by correspondence, the radio and television should be vigorously developed, and this also forms an important part of the readjustment of ratio within education itself. With regard to the departments and specialities in higher educational institutions, liberal arts and agricultural subjects, especially finance, economics and law, are the weak links. These should deserve more attention in leadership and support and the enrollment of their students should be increased.

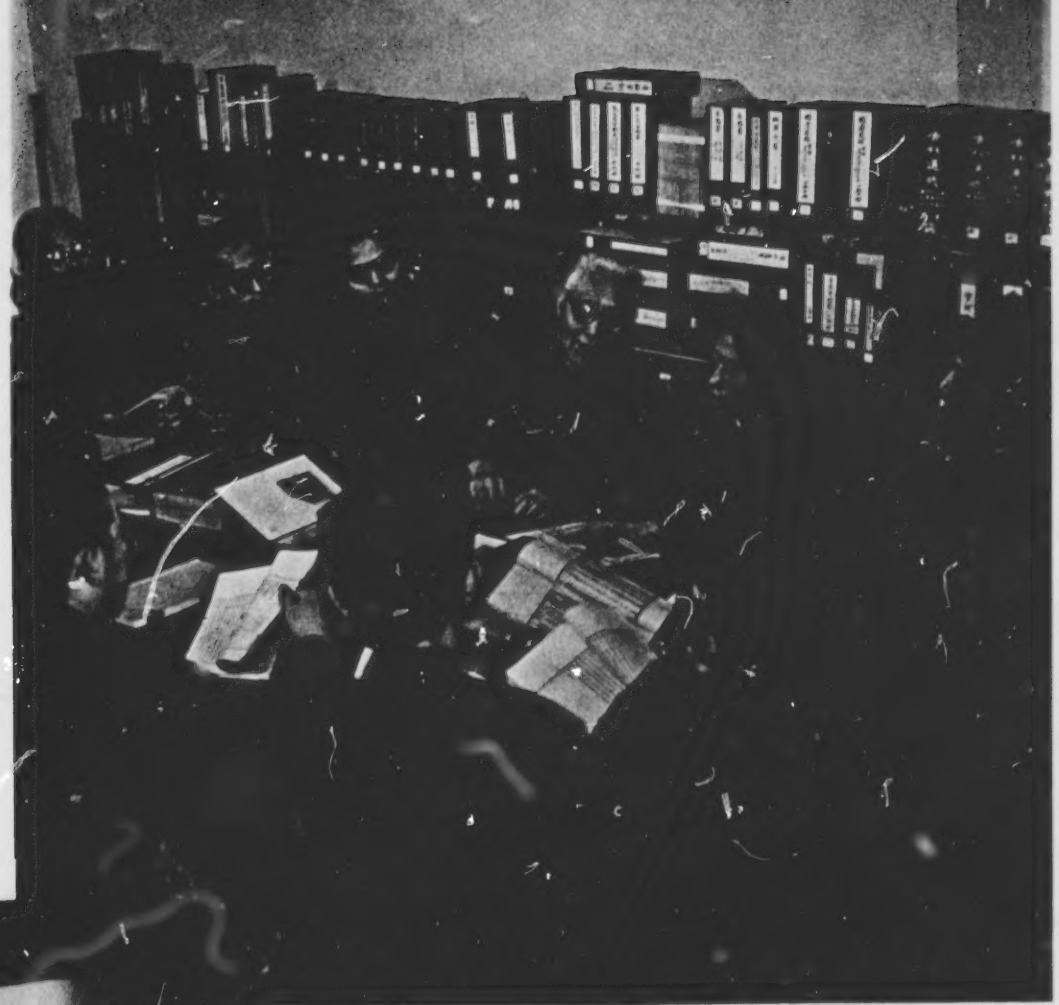
In the process of educational readjustment, necessary reforms should be carried out. Efforts should be made to change the structure of secondary education, expand vocational schools and secondary specialized schools and restrict the development of ordinary middle schools. The departments and specialities in higher educational institutions should also be readjusted on the basis of experience gained. Efforts should be made to explore the reform of the administrative system, length of study and teaching methods and gradually integrate the educational system with the labour and cadre systems. In addition, attention should be paid to learning from the experience of educational development in other countries, and to promoting international academic exchanges. In short, it is necessary to continue to sum up experience, study new situations, solve new problems, and strive for the expansion of education and the acceleration of socialist modernization.

Cheng Fangwu (*third left*) Persident, and Guo Yingqiu (*first right*), Vice-President, of the China People's University, talk with post-graduates. The China People's University was set up in 1950.

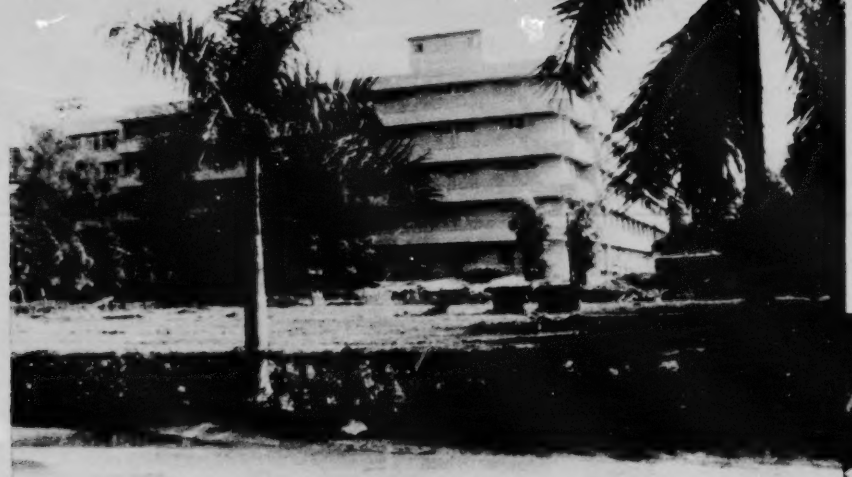
Nankai University Professor Yang Shixian, noted chemist, guides laboratory work. Established in Tianjin in 1919, Nankai is a famous comprehensive university of liberal arts and science.

A teacher of soil fertility of the Changsha Agricultural School in Hunan guides students in soil analysis.

Professor Zheng Tianting of Tianjin's Nankai University lectures at the Training Class of the University Teachers of Ming and Qing Dynasty Histories.



Professor Bai Shouyi, head of the History Department of the Beijing Teachers' University, at work.



The Mathematics-Biology Building of Jinan University, Guangdong Province.

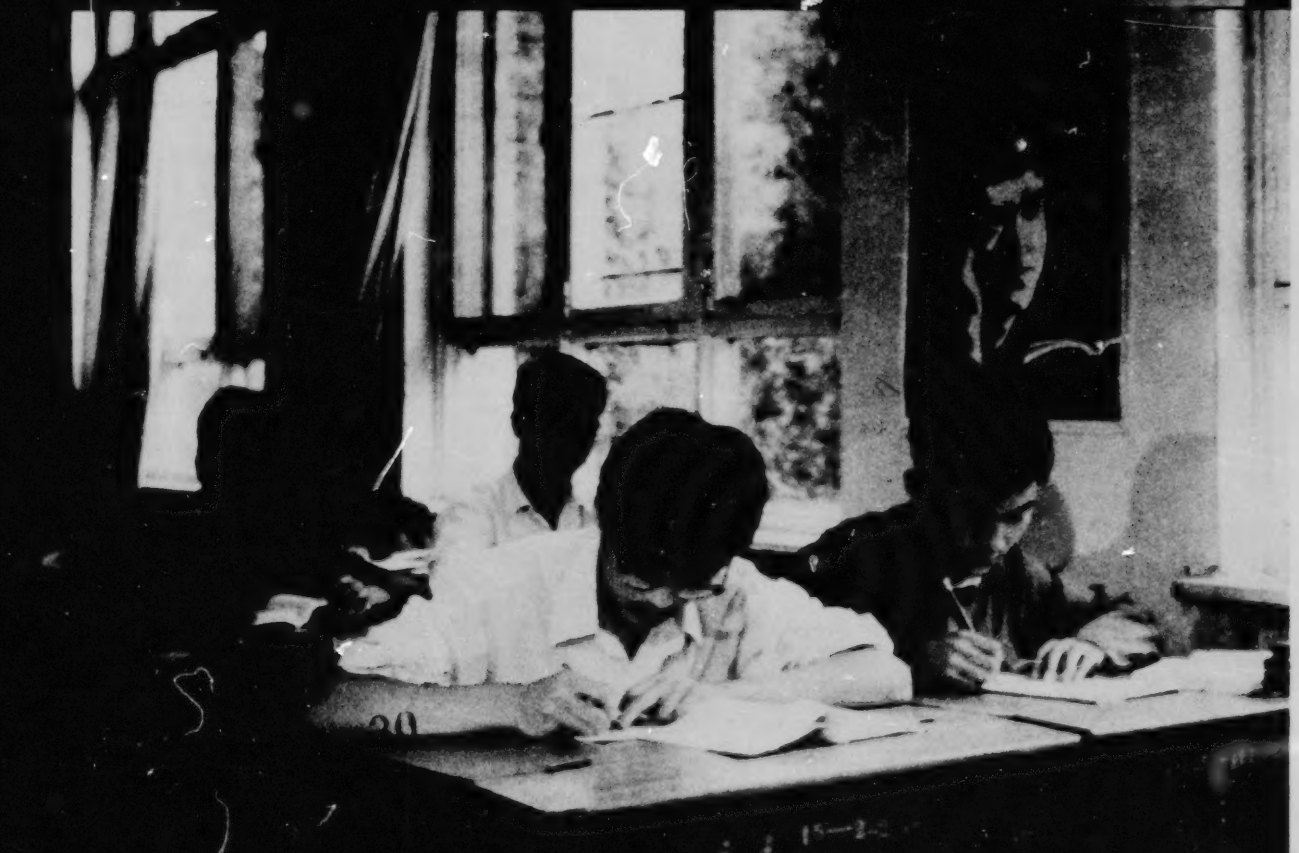
The main building of Fudan University, Shanghai.

Xiamen University, Fujian Province.

A teacher of the Dalian Engineering Institute gives students an on-the-spot explanation of the design of a landing stage at the new oil habour in Dalian.

The landing stage of the new oil habour in Dalian, designed by teachers and students of the Dalian Engineering Institute.

Psychology professor Zhu Zhixian of the Beijing Teachers' University, the oldest of its kind in China, discusses children's psychology with his assistants.



Students studying in their off hours at the Beijing No. 1 Teacher Training School, a secondary school for training primary school teachers.

Main gate to the Nankai Middle School. The late Premier Zhou Enlai was a student of this school in 1913-17.

The Experimental Middle School of the Beijing Teachers' University is a high-standard full-time middle school. Picture shows one of its junior students' extracurricular biological groups learning to dissect frogs.

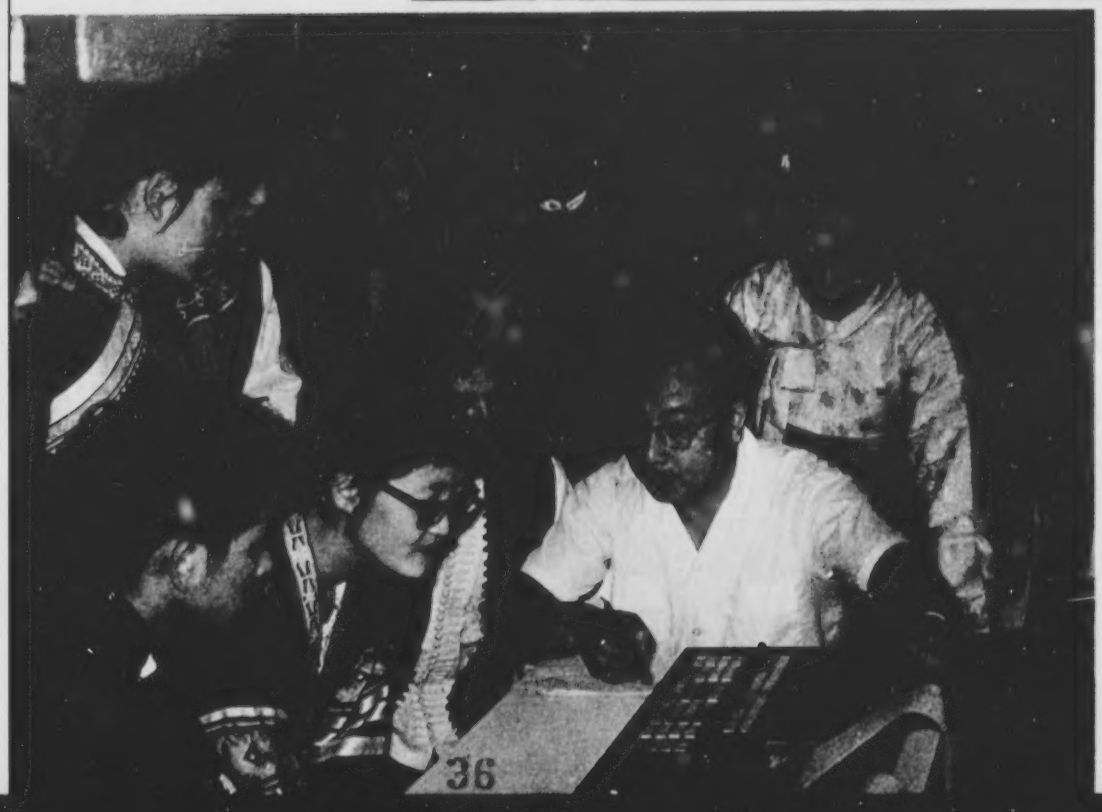
Junior students of the Beijing No. 35 Middle School conduct chemical experiment.

The late Premier Zhou Enlai visited the Beijing No. 3 School for Deaf-Mutes on April 30, 1971.

Higher grade pupils of the high-standard Beijing No. 2 Experimental Primary School work in the school-run factory.

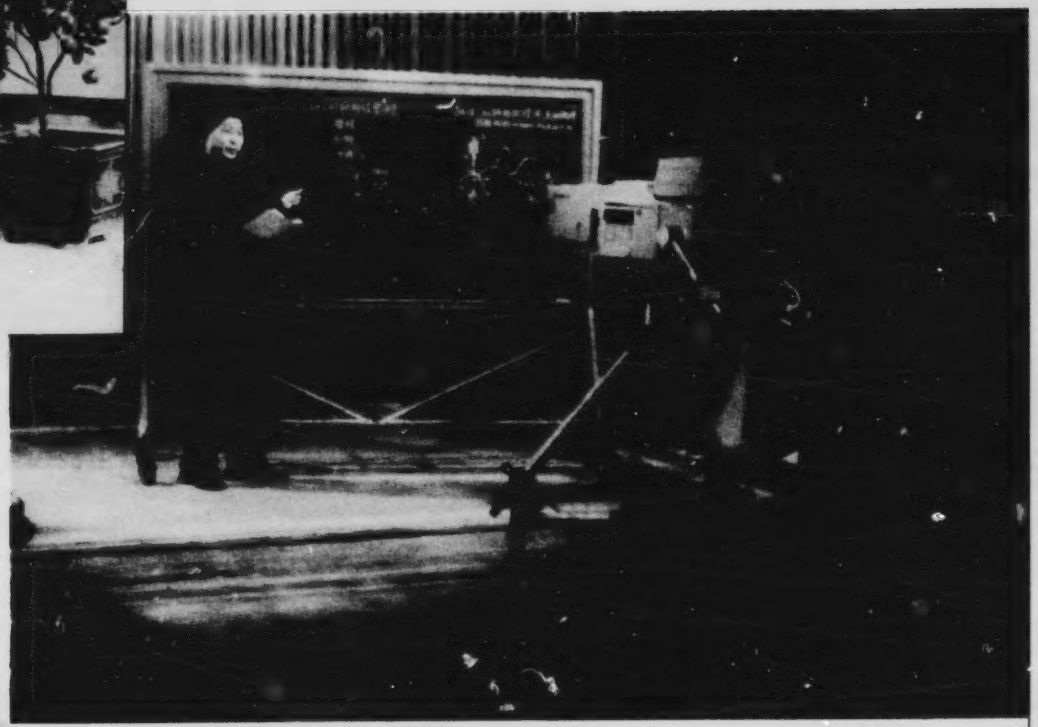
A teacher of the Beijing No. 2 Experimental Primary School coaches the school basketball team.

An interesting story cheers the kids up at the Beijing "June 1" Boarding Kindergarten.



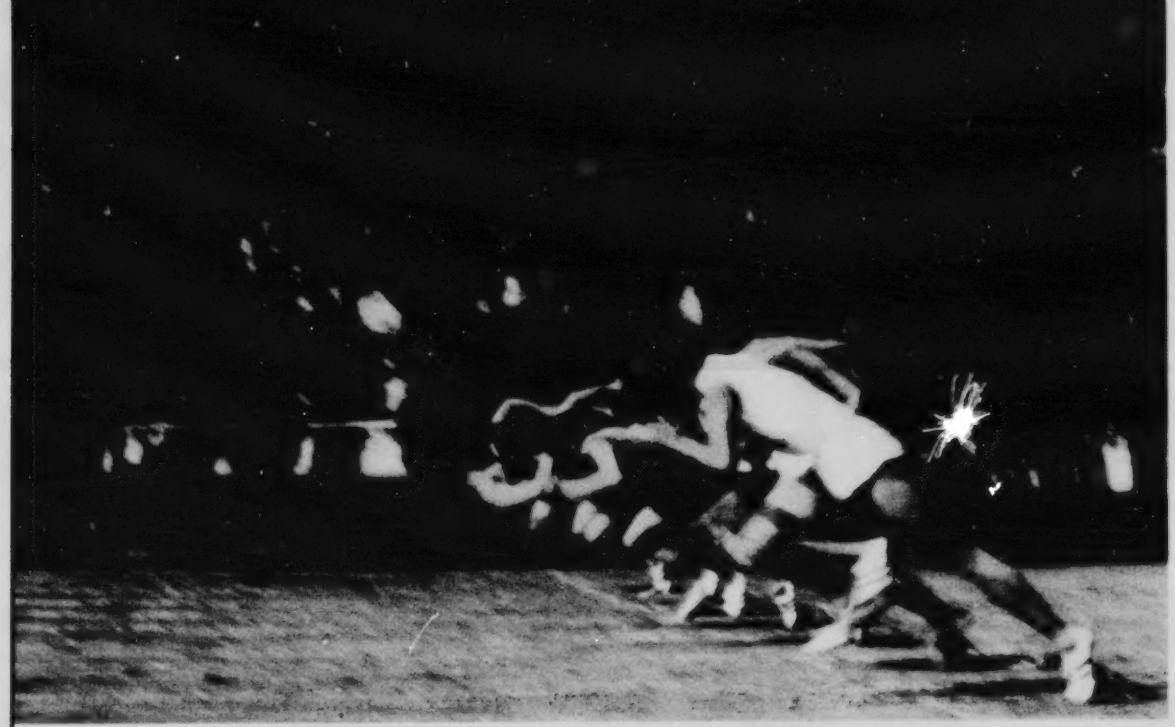
A teacher of the Department of Mathematics and Physics of the Central Institute for Nationalities in Beijing explains the structure of an electronic computer. The institute has as its goal to train minority cadres for multinational China.

A biology teacher of the Nanning Teacher Training School for Nationalities in Guangxi guides students in grafting.



The Central Open University on Television staff members video-tape a class of mechanical principles.

Students of the Putuo District No. 1 Workers' Spare-Time Middle School in Shanghai conduct electrical experiment.



Students of the Beijing Institute of Physical Culture practise short-distance running.

China People's University students swimming.

The students' brass band of Qinghua University.

Morning study, Beijing University.

On the campus of the Central Institute for Nationalities, Beijing.

pendices:
tistic Tables of Schools of All Levels and Types

NUMBER OF SCHOOLS OF ALL LEVELS AND TYPES

	1949	1957	1965	1980	percentage of increase of 1980 over 1949
higher educational institutions	205	229	434	675	329.3
secondary schools	5,216	12,474	80,993	124,760	2,391.9
secondary specialized schools	1,171	1,320	1,265	3,069	262.1
secondary technical schools	561	728	871	2,052	365.8
secondary teacher training schools	610	592	394	1,017	166.7
ordinary middle schools	4,045	11,096	18,102	118,377	2,926.5
workers' and peasants' middle schools		58			
secondary, agricultural and vocational schools			61,626	3,314	
primary schools	346,800	547,300	1,681,900	917,300	264.5
schools for the blind and deaf-mutes		66	266	292	
kindergartens		16,400	19,200	170,400	

NUMBER OF MINORITY NATIONALITY STUDENTS IN SCHOOLS OF ALL LEVELS AND TYPES

	1951	1957	1965	1980	increase of 1980 over 1951
higher educational institutions	1,285	16,101	21,870	42,900	33-fold
secondary technical schools	660	17,715	10,871	39,300	59-fold
secondary teacher training schools	4,531	19,689	8,073	44,700	10-fold
ordinary middle schools	40,316	276,926	371,792	1,993,000	49-fold
primary schools	943,000	3,194,000	4,350,000	7,522,000	8-fold

NUMBER OF STUDENTS IN SCHOOLS OF ALL LEVELS AND TYPES

(in ten thousand persons)

	1949	1957	1965	1980	percentage of increase of 1980 over 1949
higher educational institutions	11.7	44.1	67.4	114.4	977.7
secondary schools	126.8	708.1	1,431.8	5,677.8	4,478.4
secondary specialized schools	22.9	77.8	54.7	124.3	543.4
secondary technical schools	7.7	48.2	39.2	76.1	987.4
secondary teacher training schools	15.2	29.6	15.5	48.2	317.8
ordinary middle schools	103.9	628.1	933.8	5,508.1	5,301.3
senior	20.7	90.4	130.8	969.8	4,680.4
junior	83.2	537.7	803.0	4,538.3	5,456.0
workers' and peasants' middle schools		2.2			
secondary agricultural and vocational schools			443.8	45.4	
primary schools	2,439.1	6,428.3	11,620.9	14,627.0	599.7
schools for the blind and deaf-mutes		0.75	2.29	3.31	
kindergartens		108.8	171.3	1,150.8	

NUMBER OF GRADUATES OF SCHOOLS OF ALL LEVELS AND TYPES

(in ten thousand persons)

	1949-1965	1966-1976	1977-1980	total
higher educational institutions	155.4	103.3	59.1	317.8
secondary schools	2,389.1	10,617.1	8,609.3	21,615.5
secondary specialized schools	295.9	167.6	116.3	579.8
secondary technical schools	159.9	93.7	57.8	311.4
secondary teacher training schools	136.0	73.9	58.5	268.4
ordinary middle schools	2,030.2	10,449.5	8,485.1	20,964.8
senior	354.6	2,287.6	2,611.2	5,253.4
junior	1,675.6	8,161.9	5,873.9	15,711.4
workers' and peasants' middle schools	4.6			4.6
secondary agricultural and vocational schools	58.4		7.9	66.3
primary schools	6,999.7	16,520.0	9,003.0	32,522.7

NUMBER OF FEMALE STUDENTS AND THEIR PERCENTAGE IN TOTAL STUDENT BODY

	number of female students				percentage of female students in total student body			
	1951	1957	1965	1980	1951	1957	1965	1980
higher educational institutions	35,050	103,324	181,281	268,100	22.5	23.3	26.9	23.4
secondary technical schools	51,936	122,289	154,014	266,478	31.9	25.4	37.9	35.0
secondary teacher training schools	57,247	83,972	73,593	125,214	26.0	28.4	48.6	26.0
ordinary middle schools	401,200	1,935,500	3,006,700	21,800,800	25.6	30.8	32.2	39.6
primary schools	12,063,000	22,159,000	45,600,000	65,173,700	28.0	34.5	39.3	44.6

NUMBER OF TEACHERS IN SCHOOLS OF ALL LEVELS AND TYPES

(in ten thousand persons)

	1949	1957	1965	1980	percentage of increase of 1980 over 1949
higher educational institutions	1.6	7.0	13.8	24.7	1,537.2
secondary schools	8.3	29.3	70.9	317.2	3,858.4
secondary specialized schools	1.6	5.8	5.5	12.9	826.1
secondary technical schools	0.7	4.3	4.4	9.1	1,374.9
secondary teacher training schools	0.9	1.5	1.1	3.8	420.5
ordinary middle schools	6.7	23.4	45.7	302.0	4,534.2
senior	1.4	4.0	7.8	57.1	4,077.1
junior	5.3	19.4	37.9	244.9	4,655.9
workers' and peasants' middle schools		0.1			
secondary agricultural and vocational schools			19.7	2.3	
primary schools	83.6	188.4	385.7	549.9	657.8
schools for the blind and deaf-mutes		0.07	0.26	0.5	
kindergartens		5.0	6.2	41.1	

NUMBER OF STUDENTS OF ADULT EDUCATIONAL ESTABLISHMENTS OF ALL LEVELS

(in ten thousand persons)

	1952	1957	1965	1980	increase of 1980 over 1952
workers' and peasants' higher education	0.41	7.6	41.3	155.4	379-fold
open universities on TV				32.4	
workers' and peasants' secondary education	24.97	330.2	854.0	804.5	32-fold
workers' and peasants' secondary technical schools	0.07	3.0	242.2	296.3	4,232-fold
spare-time middle schools	24.9	271.4	502.2	355.1	14-fold
schools of advanced studies for primary school teachers		55.8	109.6	153.1	
workers' and peasants' spare-time elementary education	137.5	626.7	823.7	1,646.1	12-fold

NUMBER OF GRADUATES FROM ADULT EDUCATIONAL ESTABLISHMENTS OF ALL LEVELS AND NUMBER OF PERSONS WHO HAVE LEARNED TO READ AND WRITE

(in ten thousand persons)

	1949-1965	1972-1976	1977-1980	total
workers' and peasants' higher education	20.0	22.6	112.9	155.5
workers' and peasants' secondary education	208.61	12.1	216.6	437.31
workers' and peasants' secondary technical schools	27.16		64.6	91.76
spare-time middle schools	136.50	12.1	83.5	232.10
schools of advanced studies for primary school teachers	44.95		68.5	113.45
workers' and peasants' elementary education				
spare-time senior primary schools	851.8	1,420.6	1,106.3	3,378.7
number of persons who have learned to read and write	10,272.3	1,265.8	2,252.9	13,791.0

Advanced Areas in Popularizing Primary Education

Yangyuan County's Way of Popularizing Primary Education

YANGYUAN County, situated in the northwestern part of Hebei Province, is a mountainous region with a weak economic foundation. However, it has been an advanced county of universal primary education for more than 20 years.

Before Liberation, Yangyuan County was very backward culturally. There was not a person knowing how to read and write in 130 villages out of the 370 in the whole county. While making efforts to develop the county's economy, the local governments at all levels since 1949 have paid great attention to universal education, regarding it very important for the cultural emancipation of the peasants and the development of production.

By 1964, the county had made primary education universal, with 96 per cent of its school-age children at school, and, for this reason, it won the title of "Advanced County in Universal Primary Education". During the "cultural revolution", its efforts were undermined, but it has made new progress in universal education after the fall of the "Gang of Four", with both the rate of enrollment for school-age children and the rate of attendance for those already at school reaching 98 per cent. In 1979, the Ministry of Education restored its title of honour and the State Council issued an order of commendation for its remarkable work.

Now Yangyuan County has 378 primary schools with a total of 62,595 pupils and 192 junior and senior middle schools and agricultural secondary schools. The number of primary schools is 4 times that before Liberation and the number of students is 15 times more, leaving alone the fact that middle schools were non-existent before Liberation. Among the people under 40 in the county, 88 per cent have attained primary or secondary educational levels.

Why is it that Yangyuan could achieve such a success and persist in its efforts?

1. Great importance has been attached to education by

the successive county governments since Liberation. Programmes and concrete measures for the development of education are worked out every year. Special attention is paid to education in mountainous areas, teachers are encouraged to work there, and chief county leaders often visit schools to check on their work. Special concern is shown to the welfare of teachers in mountainous areas so as to strengthen their resolve in serving the people there. On-the-spot meetings are often held to spread experience in universal education.

Leaders of the State Council, Ministry of Education and Hebei Provincial Government speak highly of Yangyuan's experience in education. They often go to inspect the work there. In 1964, the Central Newsreels and Documentary Film Studio made a film about how the local teacher Ban Chengman overcame the difficulties in his work in a mountainous area. Ban Chengman was invited to attend the National Day celebrations in Beijing in 1965 and was received by Chairman Mao Zedong, Premier Zhou Enlai, Chairman Zhu De and other Party and state leaders. In 1978, the Hebei Provincial Government honoured him and Li Cai, Zhang Youyu, Yang Huilian, Li Wenjun and Tian Yuying with the titles of "Model Teacher" or "Model Educator". Li Cai was elected member of the Standing Committee of the Fifth People's Congress of Hebei Province. Teachers in Yangyuan regard these as an encouragement to them in their work for universal education.

2. The principle of running schools both by the state and by the local people has been adhered to. Schools run by communes or brigades are encouraged to develop alongside state-run schools. Besides educational funds provided by the government, communes and brigades also give financial support to local schools for the salary of the teachers, the building of new school houses and buying new teaching facilities. For instance, the Chuaigutong Primary School has expanded itself to a capacity of 1,000 pupils with the funds and volunteer labour provided by the brigade it belongs to. When the West Dayuwan Village decided to build a school, brigade leaders and villagers volunteered to help with labour and materials.

3. A contingent of teachers devoted to education in mountainous areas has been built up. Among the 378 primary schools in the county, 118 are schools of different forms, scattered in the mountains. The dedication of the teachers is the key to universal education in the mountainous areas. After more than 20 years of service Li Cai, a teacher of the Niufanggou Primary School in a mountainous area, has accumulated rich experience in teaching mixed classes which are suitable for universal education in mountainous areas. Ban Chengman, now a teacher in the Wangjialiang Village 2,000 metres above sea level, has again made remarkable success in popularizing education in the mountainous area. In the early years after Liberation, the villagers here did not know how to keep accounts. They did that by tying knots. Most of the leaders, accountants, doctors and teachers in the village today were Ban's students. This is why the villagers call him "Sower of Cultural Seeds in the Mountains". Wang Mingxi, who has been teaching in Shangzhuang Village Primary School for 28 years, has done much to promote education in the locality, where every school-age child has been admitted to school in the past 20 years. His efforts have enabled this formerly illiterate village to have over 70 senior and junior middle school graduates and a university graduate. According to the statistics in 1977, there

were 130 teachers who had been teaching for over 10 years in the county's mountainous areas.

Local teachers work all year round, in foul weather or fine, bringing education to villages scattered over wide mountainous areas. A good example is Zhang Youyu who teaches in the Liugousi Village on Yuping Mountain. Carrying with him a basket full of textbooks, teaching aids, students' exercise books and his own food, he has to walk everyday to two teaching centres which are 2.5 kilometres apart and separated by three gorges and two mountains. The local people nickname him "Basket-Carrying Teacher".

Stories of the old teachers working in mountainous areas have inspired many young teachers. Woman teacher He Cuihua, a national "Shock Brigadier", and Yang Huilian, a national "March 8 Pacesetter", are both good teachers and mothers to their pupils because they often mend clothes for the children and help them wash faces or comb hair. Wang Quan, another teacher, often carries a handicapped child to school on rainy days. Li Shuqing and Wu Yanru, both the only child in each family, left their rich hometowns and came to teach in a remote small mountain village. A married couple now, they have settled their home in the mountains and become the backbones of the village school.

4. Schools of different forms are run to suit local conditions. Pupils in the mountainous areas usually live far from each other. To meet the needs of production and for the convenience of the pupils, schools of other types than full-time schools have been set up, such as part-time schools for senior pupils who need to help their families with farm work, "mobile schools" in which one teacher serves the children of two sparsely populated villages, "day and night schools" in which children study in daytime and adults in evening, and "simplified schools" in which the teacher is also the accountant or barefoot doctor in villages with less than 10 school-age children. Different forms are also used, such as mixed class and door-to-door teaching. Morning, noon and evening classes are run specially for herds boys and girls. Adequate attention is paid to the teaching effect of the schools or classes of different forms.

5. The combination of education with productive labour and the part-study and part-work programme are adopted. The work-study programme usually includes small farms, small tree farms, small livestock yards, foundry, timber processing, leather tanning, carpet weaving, motor repairing, stationery making, weaving and knitting, and medical herbs cultivation. The income from school factories and farms is used mainly to cover the cost of pupils' textbooks, tuition and part of the school administrative expenses. In some schools, the income is used to buy stationery or clothing for the pupils or to subsidize their medical or living expenses. The work-study programme not only helps the pupils to form a correct attitude towards productive labour and the good style of hard working, but also lightens the financial burden of the state, the collective, and individual families.

Now a network of primary and junior middle school education (including agricultural middle schools) has been formed in Yangyuan County. It has primary and middle school graduates all over the county, working as backbones in various fields to change the backwardness of the county's economy. The county's yearly grain output has tripled since Liberation.

The State Council's order of commendation for the Education Department of Yangyuan County.

Young teacher Ban Chengman went to teach on Jiankou Mountain in 1962.

Leaders and members of the Qimafang Brigade building school houses.

"Basket-Carrying Teacher" Zhang Youyu on his way back from his teaching rounds.

Yang Huilian, teacher of the Chenhewan Primary School, mending clothes for her pupils.

Wang Xufeng teaches in the home of a handicapped pupil.

Teachers and pupils collecting medicine herbs as part of their work-study programme.

An after-school study group at fields.

Pupils picking grapes in the school's vineyard.

A handicapped child of the Wangjiayao Primary School goes to class everyday on the back of her friends.

A mixed class in session.

Practising martial arts.

Taojiang County's Experience in Making Rural Primary Education Universal

SITUATED in the central part of Hunan Province, Taojiang County has a population of 680,000, 150,000 acres of cultivated land, 90,000 acres of bamboo groves and 29,000 acres of tea plantations.

Before Liberation, the county was poor in economy and backward in culture and education. Over 80 per cent of its population were illiterate. The county's people started a new life in 1949 under the leadership of the Chinese Communist Party and the People's Government. Since the "Gang of Four" was out of power in 1976, its rural economy has developed vigorously with an all-round development of agriculture, forestry, animal husbandry, side-occupations and fishery. Per-acre grain yield has reached 2,860 kilogrammes and the commune members' life has greatly improved with increasing incomes.

The county government not only develops the rural socialist economy, but also pays great attention to the development of rural education. Now its 768 production brigades all have their own primary schools, its 47 people's communes all have their own junior middle schools and some of the districts and townships have senior middle schools. Four hundred and fifty spare-time schools and 713 pre-school education classes for 6-year-old children have been set up in the county. A network consisting of full-time primary and secondary education, pre-school education and adult spare-time education has been formed. The enrollment rate for school-age children has increased from 19.5 per cent in the early years after Liberation to 99.4 per cent. Five-year primary education has become universal. Illiteracy among young and middle-aged people has dropped from 80 to 13 per cent and the number of children in pre-school classes has reached 95 per cent of the total 6-year-old population.

The county government regards universal primary education as an important task. For many years, it has paid attention to the following three aspects:

1. "Easy access for children." In the past, there were no primary schools in one-third of the brigades and the existing primary schools were in bad condition for lack of maintenance. To repair old school houses and build new ones therefore became an urgent task in popularizing primary education. Apart from state-run schools, schools run by the local people are encouraged and supported by the county, with the result that more than 700 rural primary schools have been built or rebuilt, providing better chances for school-age children.

The county government pays great attention to running schools of different types, considering that peasant households are scattered over wide rural areas. Every brigade has a school, and each of the brigades whose members live far apart has one school with several teaching centres. In some brigades where there are not many children, mixed classes are organized. There are altogether 94 mobile teaching centres and 559 mixed classes in the county. The members of the Quetang'ao Brigade of the

Luojiaping Commune are scattered in six gorges around a reservoir. There was only one primary school for this brigade, making it very inconvenient for its school children. Four teaching centres have now been set up and the teachers escort the children by boat to and from the centres, so that all the school-age children are able to go to school.

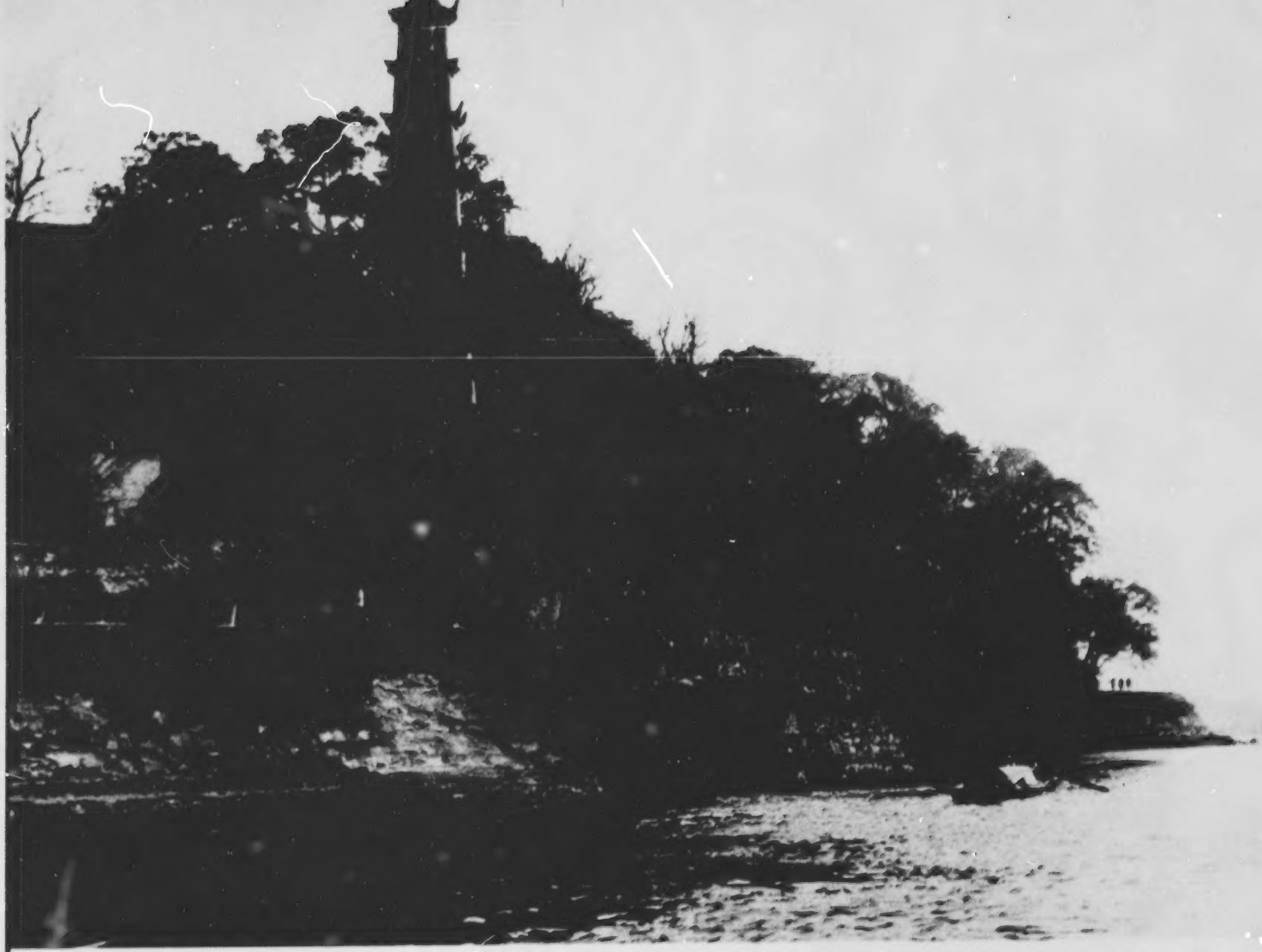
2. "Keeping the pupils at school." Once the children have enrolled, there is still a lot of work to do to keep them through school. What the county government did are: 1) Making general educational surveys. In recent years, it has made four such surveys and registered the educational background of 150,000 peasant households. This has enabled the county to keep track of the progress of universal education. 2) Grasping the factors affecting pupil drain so as to solve the problem as early as possible. From these surveys, the county government found that there were three causes of the drain: a. financial difficulties of the families; b. prejudice against girls; and c. pupils' failure to meet the standard of progress. Then different measures were taken to solve these problems. To help the pupils overcome economic difficulties, work-study programmes were started throughout the county. Many schools have set up their own small farms, tree farms, tea plantations, fish ponds and orchards to increase the school incomes. Now there are already 515 schools, or 67 per cent of the total, providing free tuition and textbooks. By so doing, the pupil drain is controlled and the combination of education with productive labour promoted. 3) Enhancing the teachers' sense of responsibility. The teachers try all their best to persuade the female pupils' parents who are prejudiced against girls to let them go on to school. They also patiently help the pupils who lag behind in study. They do not look down on these slow students, but try to get close to them and set different requirements for them.

3. "Upgrading the educational quality." Primary and secondary education is the foundation of the entire education and is crucial to the development of children's intelligence, so importance must be attached to pupils' moral, intellectual and physical development.

The key to the improvement of educational standards lies in teachers. The county has 4,576 primary school teachers, of whom many have not received professional training due to the sabotage of Lin Biao and the "Gang of Four" in the "cultural revolution". After a necessary examination of the teachers, training classes and teaching research centres have been established at county, district and commune levels to help train the teachers politically and professionally. A teachers' correspondence college has been set up. Every year, 500 teachers leave their posts temporarily to continue their study. An inspection group has been formed by 30 experienced teachers to instruct and help the work in different schools. In recent years, 82 teachers have been commended as model teachers and 325 as advanced workers. The concern of the Party and government and the love from the people greatly inspire the teachers. Most of them work with even greater efforts to improve their teaching methods and seek new ways of teaching. Last year alone, the teachers made 80,000 teaching aids by themselves.

The growth of teachers in numbers and quality provides favourable conditions for the improvement of educational standards. Now the school style, teaching style and study style have all improved greatly. New habits — studying hard, observing discipline, showing respect for teachers and love for pupils, cherishing lofty ideals, cultivating fine moral character, paying attention to manners and health — are gradually fostered in the schools. A new generation is fast coming of age in the county.

"Plant more peach and plum trees today, and there will be flowers and fruit all over the place tomorrow." The Taojiang people are full of confidence and hopes for the brilliant future of modernization. Under the leadership of the Party and government, they are determined to quicken the pace of universal education and build Taojiang into a more beautiful and prosperous county.



Taojiang County, situated on the beautiful Taogu Mountain where the Zijiang and Taohuajiang rivers join, is becoming a "land of fish and rice" and a "home of literacy".

The leaders of the county Party committee, government and educational department often meet to discuss the work in education.

Volunteers building new school houses with donated materials.

Registers of the county's literacy surveys.

A study group of the teachers' correspondence college in session.

A teacher is sending pupils to a teaching centre by boat.

Attention is paid to developing the pupils' intelligence. The pupils are eager to answer questions.

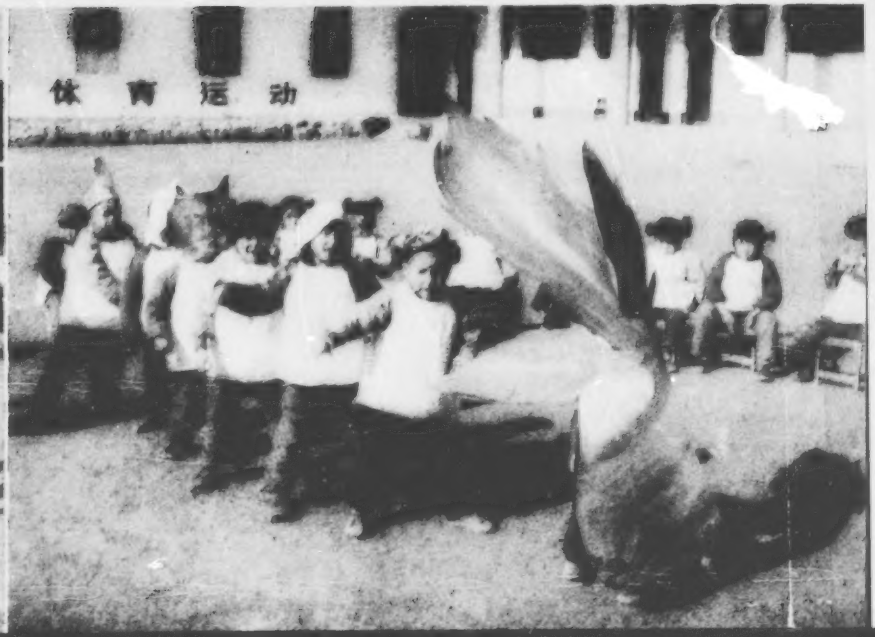
Pupils have a wide choice of extracurricular activities.

On-the-spot teaching at a spare-time technical school.

A dance performance.

Practising martial arts.

Pulling Out a Big Turnip, performed by kindergarten children.



Take the Road of Integrating Education with Productive Labour

Research and Teaching Benefit Each Other in Beijing Medical College

IN the Beijing Medical College a research group on central neuro transmitters was set up by the Physiology Department to study the principles of acupuncture analgesia. It has 16 members, including one professor, one associate professor, lecturers, assistants and technicians. Over the past few years more than 50 of their treatises have been published by both Chinese and foreign academic publications, adding to the contributions to such theoretical questions as the principles of acupuncture analgesia and the activities of the central neuro transmitters. The group was honoured by the National Science and Technology Conference as an advanced unit and won the first prize of science and technology issued by Beijing Municipality and the Ministry of Public Health.

The study of central neuro transmitters as a new subject in medical science began in the world in 1960s, but developed in 1970s. In early 1970s China had only one or two units with few researchers in this field. Later with the help of Professor Han Jisheng, then a lecturer, a research group of three people was formed. By observing and analysing the laws governing the activities of central neuro transmitters they went further into the principles of acupuncture analgesia. After several years of endeavour they laid an initial foundation for the research work in theory, technique and equipment. Their staff also increased gradually.

In order to train more specialists and accelerate the study of central neuro transmitters they, entrusted by the Ministry of Public Health, successively ran four classes for advanced studies on central neuro transmitter and the principles of acupuncture analgesia, with a total enrollment of 30. Classroom teaching was combined with research to enable the students not only to deepen their understanding of the basic theories about central neuro transmitters but also to acquire the ability to make experiments themselves. The students together with the full-time researchers completed 40 academic papers. Two of them, "The Study of Anti-Opiate Substance" and "The Interrelationship Between Seioconin and Endophine", were read out at the International Narcotic Research Conference held in the USA in 1979, and drew the attention of all present. Both of the articles contribute to further explanation of the principles of acupuncture analgesia and the study of the interrelationship among the central neuro transmitters. The 1981 International Narcotic Research Conference which will be held in Japan has invited Professor Han Jisheng to attend the conference as a member of its presidium to preside over the discussions of acupuncture analgesia and report to the conference on the subject. Han Jisheng and his colleagues have also been invited by the International Symposium on Regulatory Peptides to be held in Italy and the Hongkong Neuro Science

Association to attend their meetings and make reports.

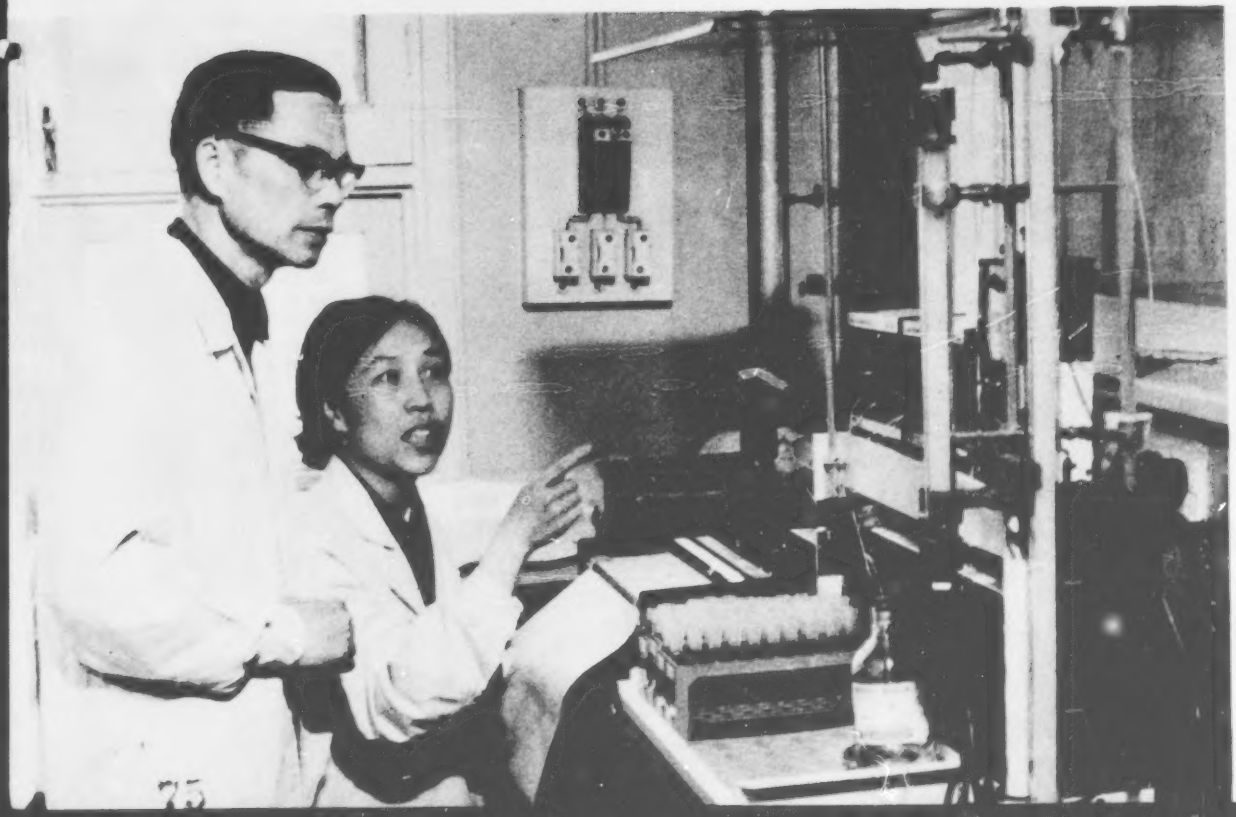
Most of the students in the classes for advanced studies were middle-aged teachers and research personnel from medical colleges or research institutions. Although they had rich experience in teaching, they lacked adequate basic training needed in research work. During the training period, apart from studying theories about central neuro transmitters they were assigned to specific research projects to learn basic operation techniques. They were also taught how to use reference books and how to plan an experiment. On the basis of experience gained through constant practice, they were then asked to analyse the data they had collected and write out their theses. All the students valued their time and worked hard. At the end of one year each wrote at least one thesis, while some even accomplished two or three research projects. Upon completion of their courses the students became capable of carrying out research work independently and returned to their original units where they have helped set up new central neuro transmitter research groups. These classes for advanced studies have not only trained more professionals, especially middle-aged researchers, but pushed forward the work of the medical college and its laboratories. Now everyone has come to see that training classes have offered an effective way to integrate teaching with scientific research and to bring about more research results.

One of the important tasks of the institutions of higher learning is to train post-graduates. Since 1978 this research group has enrolled 7 graduate students. Guided by professors and tutors the students have gradually obtained the ability to plan experiments and carry out research by themselves. Of the two graduate students enrolled in 1978 one has completed three theses while the other, six. They both have written many review articles, of which some have appeared in domestic academic journals. The journal *Neuropharmacology* will publish one of their theses this year — "Acupuncture Tolerance of the Rats". Both of the graduate students have recently successfully passed the thesis defence and their dissertations are praised by the thesis committee.

To help the integration of teaching and scientific research, the group has also organized three students' research groups by selecting the best from among those who applied. The students use their vacations and off-class time to do research. With the help of their teachers they have turned out three academic theses which have been published in *Chinese Medical Journal*. One of the three is titled "The Role of Endophine in Hemorrhagic Shock". The students are also introduced to Chinese and foreign reference books and encouraged to write book reports to be read out to their classes. Experienced teachers are sometimes invited to speak on new developments in world medical science as well as achievements in China's medical field. A good variety of teaching methods are introduced to enrich the teaching programme and arouse the students' interest in their studies. The students also receive an education in patriotism and socialism. All this has helped the students consolidate and extend what they have learned in class, trained them in thinking and analysing problems independently, and enabled them to gain some experience in research work too.

Scientific research and teaching benefit each other while teaching benefits both students and teachers. Activities like training graduate students, organizing classes for advanced studies and student research groups have in turn stimulated the research and lab work of the central neuro transmitter research group, because the students coming from different parts of the country have brought with them good experiences and new methods and they have provided the group with a better chance for academic exchange. For instance, China in the past did not have a textbook on neuro transmitters. But the training classes, the graduate students programme and the forums organized by the students have helped to work out new textbooks. In addition to compiling a dozen kinds of loose sheet materials on neuro transmitters and acupuncture analgesia, they have written a book called *An Outline of Central Neuro Transmitters*. The book has already been published by the Science Publishing House and received favourable comments from medical science circles in China.

Professor Han Jisheng and his colleagues discussing the text of a speech delivered at the 1979 international Symposium on Acupuncture Moxibustion and Acupuncture Anaesthesia.



Professor Han Jisheng instructing a post-graduate how to conduct the biochemical separation and purification of anti-opiate substance in the brain.

Professor Han Jisheng at research work.

Teachers of the central neuro transmitter research group discuss cases by acupuncture anaesthesia.

Professor Han Jisheng demonstrating to the students for advanced studies the use of a stereotactic instrument.

Beijing Agricultural University Combines Teaching, Scientific Research, Production and Popularization

THE Beijing Agricultural University has set up a teaching-research centre in Weichang County, Hebei Province, for improving and expanding beef cattle production to meet the needs of teaching, scientific research and development of livestock breeding in northern mountain pastures. As a base for practice for higher grade students, it integrates teaching with production and scientific research. The centre also takes it upon itself to popularize science and technology among local people, and to help train local secondary and elementary technicians for the promotion of production.

The centre is located in the northernmost part of Hebei, 1,300-1,800 metres above sea level, at Latitude 41°55' N. and Longitude 116°45' E. The county has a cold climate, with a frost-free period of about 100 days, and an annual precipitation of approximately 400 mm. It has mountain pastures totalling 6,000,000 mu, or 1,000,000 acres, all of them unameliorated natural pastures with a sparse growth of grass because of the dry climate and over-use. Conditions for both farming and animal husbandry here are poor. The county has a total of 16,000 basic cows, most of them unimproved Mongolian stock that grow slowly to 300 kg in weight after 3-4 years of breeding. The university research centre has a regular staff of one professor, one associate professor, four lecturers and one assistant. Over the years it has gained the following experience.

(1) Combining teaching, research and popularization, training local technicians, helping to increase local production, and improving the standards of teaching.

The county has a cattle population of more than 60,000. Because of the shortage of improved breed of bulls and the lack of technical personnel, before the establishment of the centre, artificial insemination of frozen bull semen and improving breed by crossing had not been popularized. Realizing that a grassroot technical force had to be built to popularize these techniques in the people's communes and production brigades, the teachers constantly went to the forefront of production, conducted experiments with the county veterinary station and opened classes of diverse forms to train peasant technicians. A couple of years' efforts has given shape to a 150-strong grassroot technical force and more than 100 artificial insemination stations. By now, artificial insemination of frozen semen is widely applied in the county. In 1980, more than 7,000 cows were artificially inseminated with an average conception rate of 70 per cent. The more than 8,000 offspring from crossbreeds gain 30 per cent more weight than the unimproved local breed.

To increase the number of beef cattle, it is also necessary to change the techniques of breeding and managing. Unprotected by pens from the inclement weather and with the lack of protein-rich fodder, the beef cattle often lost weight in winter and spring. This problem has aroused the attention of the centre's staff and their research has led to the adoption of a number of effective methods. These include replacing vegetative protein with urea, making granulated fodder with roughage as the main material, using hormone to precipitate the sedimentation of body protein, keeping the cattle in improvised pens in winter, preserving green grass in silos, and

turning sugarbeet bagasse to good account. The beef cattle now gain 400-500 grammes daily in winter. The centre has run three animal husbandry training classes for local people, where they are taught the basic knowledge of ruminants' nutrition and the technique of raising them

These activities keep the university teachers posted on the problems in production and the needs of the peasants, and help push forward local production, raise the teachers' professional level, enrich the content of teaching and improve the standards of education. The teaching material on beef cattle compiled by the university, for instance, is based on the experience gained by the centre in research and production technique.

(2) Building corresponding centre for field work for higher grade students.

The centre is located in the Hougou Breeding Stock Farm which has a mountain pastureland of 90,000 mu in Weichang County. This unimproved natural pasture had deteriorated so much so that each mu of dry grass yielded only 50 kg annually. There was a shortage of technical personnel in the locality. The centre began with the experimental transplantation of wild grass of 114 varieties from local sources or from other parts of the country and foreign countries. By 1980, they had selected 28 varieties of perennial forage grass suited to local growth, 10 of them being of excellent quality. Of these, four were high-protein perennial leguminous grass that yield as many as 942 kg of dry grass to the mu even without irrigation. At the same time, part of the pastureland which had seriously deteriorated to the point of having only 30 per cent covering and a grass layer of merely 20-30 cm in height was revamped to become a perennial artificial pasture with a total area of 2,000 mu. An additional 1,500 mu of mountain pasture was closed, harrowed and sown to improved seed, so that both the area of good quality grass and its yield have increased markedly. All this has laid the foundation for teaching.

Within the university walls students have no idea of what a vast natural pastureland looks like, and teachers can only teach *Grassland Botany* and *Taxonomy of Forage Fodder* with herbage samples in classrooms or laboratories. But when they participate in the survey of natural resources in the centre after they have finished the *Study of Grassland*, they are able to conduct on-the-spot investigation into the variety of forage grass, the botanical classification, the types of vegetation and the yield of grass, and write reports under the guidance of their teachers. This is instrumental in enabling students to familiarize themselves with the methods of working in the grassland and enhance their ability of improving the pastures.

Higher grade students are encouraged to participate in the centre's research projects in preparation for their graduation papers. Having selected their own themes in consultation with their teachers, they read reference materials and participate in research and field work together with local technicians and stockbreeders before finally turning out their papers.

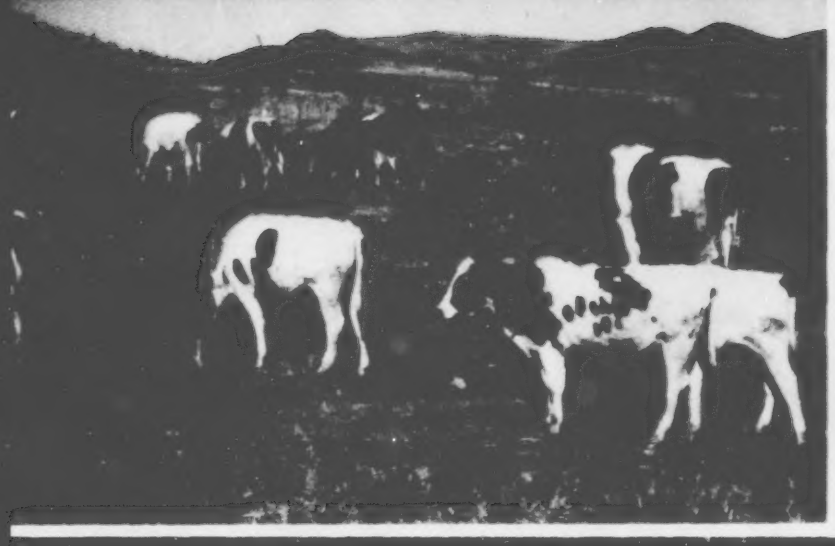
(3) In the process of setting up the teaching-research-production centre, attention is paid to the following points:

a. It is necessary to select a centre with typical production and natural conditions and to enable the students, through practice in the centre, to deepen their specialized knowledge and apply it flexibly.

b. The centre should be run on a long-term basis. In this way, new production problems can be raised every year to enrich the content of both research and teaching and to enable teachers continuously to increase their practical knowledge. While engaged in teaching, teachers should at the same time conduct research in the centre. The centre's research into the ways of improving northern mountain pastures for the development of beef cattle production has been listed as one of the key research projects of the Ministry of Agriculture.

c. China being a populous and technically backward country, it is impossible, in the foreseeable future, to send many technicians with university educational level to work in mountain regions. To ensure the continuous expansion of its work, it is essential for the centre to train local technical personnel and send them by batches to the university for continuing study.

d. The centre should pay attention to the popularization of techniques in rural areas. It has done this by opening training classes. In the past few years, the centre has acquired a number of techniques which have been proved effective and are being tried out in Inner Mongolia, Shanxi and Shandong.



The unimproved natural pastureland with its sparse growth of grass.

The experimental artificial grassland of the Beijing Agricultural University's teaching-research centre (without artificial irrigation).

The teaching-research centre experiments with the mixed sowing of the grass family and leguminous forage fodder (without artificial irrigation).

The improved crossbred cattle grazing at a mountain pasture.

The improved crossbred cattle.

81

Education Is Combined with Productive Labour in the Department of Biology, South China Teacher Training College

TRAINING teachers of biology for secondary schools is the task of the Department of Biology, South China Teacher Training College. Ever since 1950, the department has combined education, scientific research and productive labour into an organic whole, with satisfactory results.

I. Combining Scientific Research with Production Practice

In its scientific research, the department, apart from carrying out basic theory research work on various subjects, has engaged in applied science research in connection with problems in social production.

Black carp, grass carp, silver carp and bighead carp are four main species of freshwater fish farming in China. They are the major source of fish supply in both urban and rural markets. Spawning and breeding of these four species in ponds, however, were impossible for a long time and as a result, a great quantity of manpower and material resources had to be exploited to catch fry from the Changjiang and Zhujiang rivers in order to meet the needs of pond-fish raising. This obstacle to fish culture had to be removed as soon as possible.

The Zoological Teaching and Research Section of the Department of Biology, therefore, started research on the biological habits of these four species of cultured fish in combination with their teaching on ichthyology. In the early 50s, an investigatory and research group composed of over 40 teachers and students led by Professor Pan Jionghua made extensive and in-depth investigations on the breeding habit of the four species in the Zhujiang River system, summed up the necessary internal and external environmental factors for the fish to spawn, and suggested physiological and ecological methods essential for the breeding of cultured fish, such as increase of the Vitamin E content in the fodder, artificial injection of gonadotrophin and the providing of flowing water. In 1958 when scientists of aquaculture succeeded in artificial breeding of cultured pond-fish by adopting the "physiologically and ecologically combined hastening of parturition", the theory put forward by the investigatory and research group was proved correct. Their investigations not only enriched the teaching content and raised the theoretical level of the teachers and students, but also contributed to the development of freshwater fish culture in China.

Tilapia, a kind of tropical fish, was first introduced from Africa to Guangdong Province in south China in 1957. As it grew fast and its breeding rate was high, it soon became one of the major pond species. However, as the greater part of the province is subtropical there was the urgent problem of how to

keep the fish through winter and how to ensure the supply of fry needed for fish farming.

In combination with its teaching, the Teaching and Research Section decided to make use of the rich underground hot spring system. They came up with a series of measures to ensure the cultivation of the fish in hot spring water, their passing through the winter, and the rearing of fry. They also built some hot spring ponds for the fish to breed and live in winter. This resulted in the rise of fish yield per unit area. Apart from teachers, several dozen senior students also took part in the various stages of this project.

The Plant Physiology Teaching and Research ' n of the Department of Biology has been working fo: ı the role of plant hormone in increasing crop production and achievements have been made in this field. Peanut is a major oil crop in Guangdong Province. Peanut plants, especially during the spring growing period when temperature is high and rainfall excessive, often grew apace and then they would lodge. How to prevent the plants growing on fertile land from lodging so as to ensure high yield was then an important question in cultivating high-yield peanut. After years of hard work, Associate Professor Pan Ruizhi, together with some teachers and students, not only succeeded in finding out theoretically the role of plant Hormone B9 in increasing peanut production, but also summed up the working experiences in applying the hormone.

Rice is the principal crop in Guangdong Province, where production requires constant replacement of the old breeds by the new ones. While carrying out normal teaching, the Genetics Teaching and Research Section of the department set up a research group on rice breeding in combination with its research work on genetic mechanism. Thus, the teachers led the students to start experiments on rice breeding. They tried a number of ways such as sexual hybridization, physiological and chemical factor induction of mutation, crossbreeding and radiation combined induction of mutation. In analysing the laws governing the hereditary characteristics of rice and the genetic mechanism of radiation induction of mutation, the group cultivated some new, good breeds and strains of rice. Among them, *Hongfengzao*, an early-maturing early rice, proved to be highly conducive to the increase of rice production.

II. Teaching Materials Must Be Closely Combined with Production Practice

In all links in the teaching chain, the Department of Biology always pays attention to the combination of teaching and production. From material compiling to classroom lectures, teachers try to list examples with practical significance in production to explain the basic theory so long as they can make the point equally clear. Take the chapter of photosynthesis in plant physiology course for example. On the basis of explanations on the basic theoretical points, questions such as the increase of the utility rate of light energy and the increase of carbon dioxide content in the fields in relation to the equipment of different types of rice stems and leaves as well as rational close planting were all discussed. The experimentation classes and the specialized practices were all combined with production practice to the best possible extent. In the experiment to verify the genetic laws as part of the course of genetics, the students, in view of the need of scientific research, were called upon to make experiments on rice crossbreeding and analyse the hereditary characteristics to increase their knowledge of genetic laws. In the meantime, fine breeds were cultivated and materials collected directly to serve agricultural production. In teaching the course of zoology, after delivering the lectures on artificial breeding of fish and its embryo growth, the teachers took the students to the fish breeding ponds to practise artificial hastening of parturition and hatching and to observe through microscopes the development of fish embryos so that students, on the one hand, learned the techniques for production and, on the other, broadened their knowledge of the basic theories of artificial breeding and embryology.

To ensure the combination of teaching and scientific

research with social production activities, the Department of Biology has adopted the following measures:

1. Adding social production activities to the course content when drawing up the teaching plan. The offering of courses, the choosing of scientific research projects, the content of experiments and the ways to make them must all be studied and arranged carefully so that teaching, scientific research and production are organically linked together.

2. Ensuring rational distribution of staffers and guaranteeing their time. Most of the research projects are carried out in combination with teaching. Every project has a staffer specially put in charge and a number of teachers and workers with some students taking part in the important processes. When drawing up the teaching plan, hours devoted to lectures, research, experiment and practice must be in the right ratio.

3. In combining scientific research with production practice, production centres must be run well on top of strengthening the building up of laboratories. The department runs a small experimentation farm where the cultivation of rice, peanuts, forage grass and other crops as well as the rearing of fish, pigs and chickens are done. It provides research projects of various subjects with a base and the students with a place where they can make experiments and carry out specialized practices. The Department of Biology also keeps contact with some rural communes which provide the department with relatively stable production bases outside the college. Problems that emerge from production are constantly reported to the department which in turn, relays to production units what it has achieved in scientific research to be tested in good time so that the results of research work can be popularized quickly.

From their own experiences, people from the department feel combination of education with production has the following advantages.

1. It is advantageous to bringing up specialized personnel. Solving problems of production in the course of teaching, and carrying out teaching and scientific research in combination with production will help in putting theory into practice, broadening students' knowledge, encouraging and directing students to analyse and solve problems and improving their abilities to work independently.

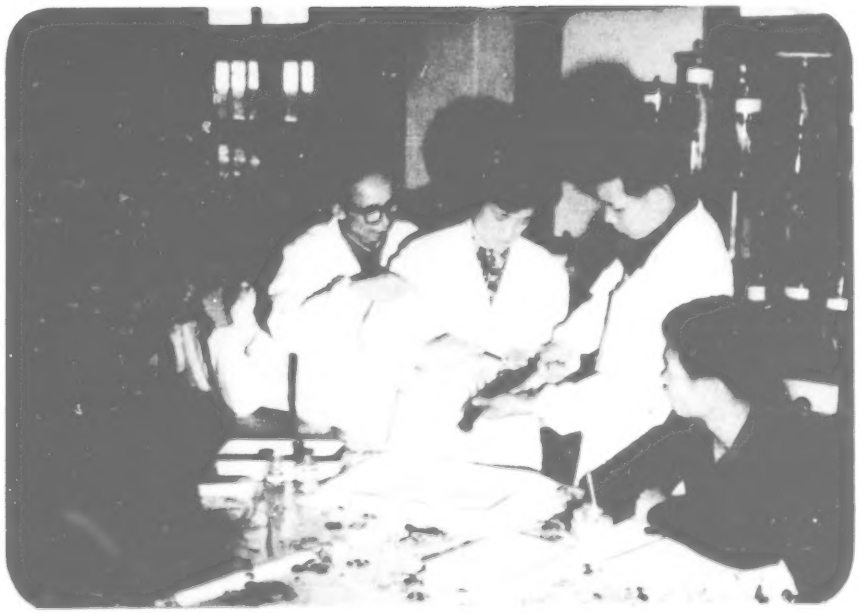
2. It helps to enrich the content of courses. To combine teaching with problems in social production and relate the achievements of scientific research to teaching provides a constant source of supplementing the course content and replacing the old materials with fresh ones. Associate Professor Pan Ruizhi dealt with the role of Plant Hormone B9 in increasing peanut yield and research achievement concerning the rice seedlings' resistance to cold in his work *Plant Physiology* which is used throughout the country as a textbook and in a monograph entitled *Rice Physiology*. With their stronger originality in comparison with others on the same subject, these works have been well received by readers.

3. It helps the building up of laboratories and experimentation grounds. In their investigations into the freshwater fish resources of Guangdong Province, the Fish Research Group obtained large quantities of specimens and data, resulting in the setting up of a freshwater fish specimens room with a fairly complete collection of species. The fund accumulated from the proceeds of the various research projects accelerated the expansion of laboratories and experimentation grounds as well as the renewal of equipment.

4. It helps to increase the income of social economy, upgrade people's living standard and promote the development of production. The artificial breeding of cultured fish and tilapias' survival through winter promoted the development of pond-fish culture in Guangdong Province. As the percentage of tilapia in freshwater pond-fish production has been increasing, it has become one of the major species of pond-fish. The college farm now produces about 25 tons of freshwater fish each year. The application of Plant Hormone B9 to peanut has been popularized and the increase of production after the application is normally over 10 per cent.

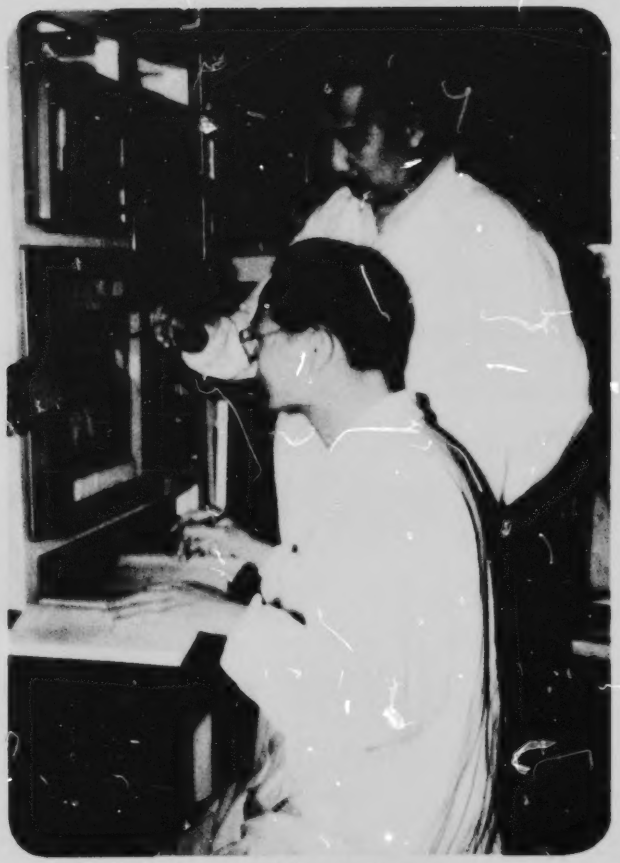
Professor Pan Jionghua (*fourth left*) teaching post-graduates of ichthyology the breeding of tilapia by selection.

Teachers and students examining the growth of pan-gasius sutchi at the fish pond of the college experimentation farm. The species was introduced to China from Thailand a few years ago.



Teachers instructing post-graduates experimenting on fish artificial parturition and crossbreeding.

Research staffers of the Cell Heredity Research Section studying chromosome karyotype changes induced by radiation.



Teachers examining the intensity of photosynthesis of peanuts with the help of infrared Ra; CO_2 analyser.

Associate Professor Pan Ruizhi (*third right*) answering questions while discussing with a research group of teachers, students and peasants about the effects of Plant Hormone B9 on the growth of peanuts.

Teachers observing the changes in cells by the application of Plant Hormone B9 in peanut plants.

Teachers and students doing analytical examination of rice seedlings at the farm run by the Department of Biology.

Associate Professor Pan Ruizhi (*centre*) answering questions that emerged in research work.

Education in Productive Labour in Nankai Middle School

THE Nankai Middle School in Tianjin, founded in 1904, is an old ordinary full-time middle school. The late Premier Zhou Enlai studied there between 1913 and 1917. In pursuance of state educational policy in 1958, the school founded a factory and offered a productive labour course. Since then the factory has planned production with the emphasis on helping students acquire skills. It has improved its management steadily to become a centre of education in productive labour. At present, it has mechanical, carpentry, chemical and electronics workshops, with over 100 machines and more than 80 workers, technicians and managing personnel. It produces mainly automobile parts, wooden furniture, carboxymethyl cellulose and transistors, with an annual output value of 600,000 yuan and a net income of 200,000 yuan. The productive labour course forms an important part of the school teaching plan. The students take the course by the grade, working six hours daily for one or two weeks continuously each semester.

The aim of organizing students to work in the school-run factory is to enable them to recognize the importance of, and form a correct attitude towards, labour, stimulate their sense of responsibility and pride towards labour, cultivate diligence, frugality and love for public property, and make them aware of the need to make their contributions to the country's modernization programme with their wisdom and hands. Veteran workers and grade masters constantly organize educational activities known as "four talks", "one guidance" and "one award". "Four talks" means talks on the significance of labour, the relationship between labour and the development of social production, the revolutionary spirit of plain living and hard working, and the importance of observing labour discipline. "One guidance" means grade masters and veteran workers giving guidance to students in labour. "One award" means choosing activists through appraisal of the students' work and giving them awards. Such activities enable students to realize that they should be good not only at study but also at work and that they should master production skills and develop morally, intellectually and physically. In this way, they gradually become fearless of neither dirtiness nor fatigue and accustomed to simple, ordinary labour. Through these activities some of the students have got into the habit of working for the common

ood both within and without the school, while some have ecome good friends with the veteran workers and keep in nstant touch with them even after they graduate. Many of the adaates from the school who work in regular factories have een commended as hard workers.

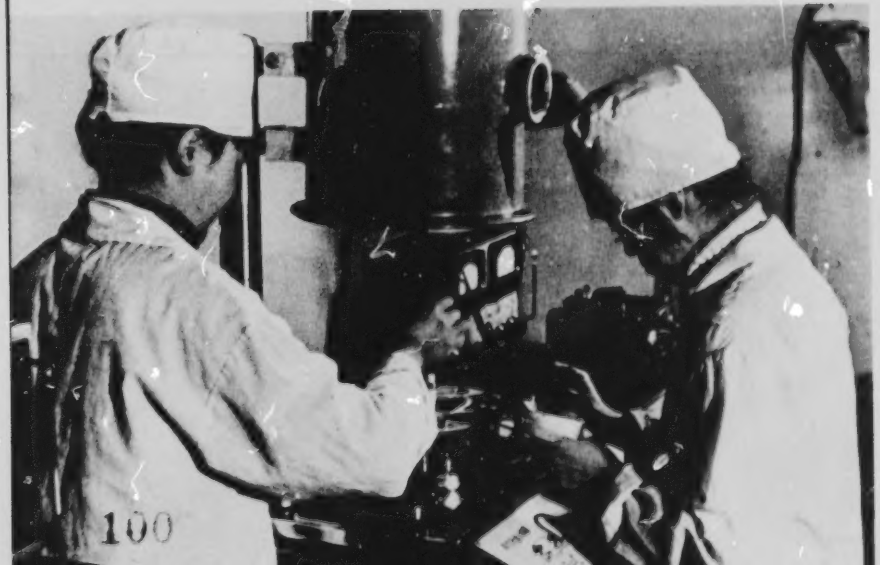
Acting on the principle of combining theory and practice, e school authorities make it a point to help students acquire oth production knowledge and skills, widen their knowledge nd deepen their comprehension of book knowledge. Junior udents are required to deepen their comprehension of what ey have learned from mechanics and geometry, and to learn read simple blueprints, use mechanical and hand tools, perate lathes, planers and millers, apply measuring instruents and inspect the quality of work. Senior students are quired to know about the wide application of chemical nowledge in production, understand how to use heat and essure to produce chemical reaction, and understand the chnological process of transistor production, the principles of nsistors and their basic application, and master the use of mmon transistor testing instruments. Students are required do different kinds of jobs in the factory to familiarize them th diverse work processes. Efforts are made to create nditions for them to grasp the operation of complicate achines. For complicate mechanical processing of parts, the ulti-process work on one single lathe is changed to single-ocess work on several special machine tools to make it easier r students to understand and master the work. Students are couraged to work on their own. They are encouraged to work e machine parts by themselves in machine-building, work in oups on small furniture in carpentry, conduct adhesiveness test in chemical industry, assemble transistor radios or rectify the mains in electronics workshop. Two kinds of lectures on basic production knowledge are given separately to junior and senior students by workers, technicians and teachers. One is lectures on production technology based on the needs of production — the operation and technological process of carboxymethyl cellulose for junior students and the principles and technological process of transistor production for senior students. The other is special lectures aimed at widening students' production knowledge and given in connection with practical experience. These include, for junior students, the use and principles of carpenter tools, the structure and geometric diagrams of wooden articles, the reading of simple mechanical drawings, and familiarity with machine tools and their principles; and, for senior students, chemical examinations and quantitative analysis in chemical industry, the application of chemical knowledge and the principles of transistors and their application in electronic production. Some of the lectures are given with on-the-spot demonstration to stimulate the interest of the students. For example, workers explain the structure and geometric drawings of a wooden article at the same time as they engage in the actual making of that article, and when class is over the article is completed. Through study and practice, students have widened and deepened their knowledge and acquired elementary skills. Some of them have become carpenters, electricians, fitters and laboratory assistants in regular factories. Others, who have gone on to university, have done well with the solid foundation knowledge and skills they acquired in the Nankai Middle School.

Students work alongside veteran workers in the mechanical shop of the school-run factory.

Veteran workers putting students through their paces in lathe operation.

A veteran worker lectures on the use and principles of measuring instruments.

Pressure-welding transistor lead-ins.



Vaccum film-plating in the transistor shop.

A teacher lectures on the technology and principles of transistors to students working in the transistor shop.

This carpenter drill, adapted by students, has raised efficiency by a wide margin.

Students working to produce carboxymethyl cellulose sodium in the chemical shop.

Training Work Reserves with Culture and Technique and Capable of Actual Operation in the Secondary Vocational Schools in Fuxin City

UXIN, a rising industrial city in Liaoning Province, has long been known as a "city of coal and power". In the two years, it has set about changing the single structure of condary education caused by Lin Biao and the "Gang of " during the 10-year rampage. In this period, it has lished 73 secondary vocational schools, with a total of students specializing in 57 subjects, including compre- ve coal mining, metalwork, foundry, electrical engineer- machine-building, weaving, sewing, cooking, tailoring, processing, service trade, oil-bearing crops, animal hus- ry, orcharding, bee-keeping, and fine seed cultivation. e of these are run by industrial enterprises or people's nunes, some jointly run by industrial enterprises and ational departments, some remodelled from ordinary senior middle schools, and some are vocational classes run by ordinary middle schools. Whatever form they take, all have achieved good results.

The vocational schools enrol junior middle school graduates, with the aim of training work reserves with culture and technique and capable of actual operation. They are run on a part-work, part-study basis, integrating education with productive labour, and part of their funds comes from the sales of their produ[illegible]

Curricula consist of general education, basic specialized courses, special technical courses, and practice. The ratio between courses varies from subject to subject. In the case of subjects that call for less theory but more mastery of certain skills, practice accounts for 50 per cent while general education

and special courses each for 25 per cent. For subjects that call for more general and special knowledge, the ratio between general education, special courses and practice is approximately one-third each. The length of study is two years for schools of the former type and three years for schools of the latter type.

To meet the requirements for part-work and part-study, there are special teachers for general education, specialized theory courses, and practice. Of those who teach specialized theory courses, some are full-time and some part-time teachers. Not being withdrawn from research and productive work, these part-time teachers are able to timely impart advanced scientific and technological knowledge to students. Among the 698 teachers in Fuxin's secondary vocational schools, 405 are of general education, 249 of specialized courses (part-time teachers included) and 44 of practice.

The establishment of bases for practice is an important requirement for combining education and productive labour and training students in technical skills. Most of the bases for practice of Fuxin's secondary vocational schools are oriented to specialized training, their aim being to cultivate students' operation ability while at the same time producing to add to school income. A few of the bases are not suited to specialized training, their aim being mainly to make profit to increase school income.

There are three types of bases oriented to specialized training: (1) The three-in-one combination of factory, store and school. The Vocational School of the Municipal Foodstuff Company, for instance, runs a restaurant for use by its cookery speciality. (2) Establishments built by school teachers and students themselves, such as the sewing shop of the Municipal Sewing School. (3) Regular workshops of the students' specialized fields. Students of comprehensive coal mining at the Wulong Colliery of the Fuxin Mining Administration, for instance, use the colliery's multi-purpose extractors for field work.

In teaching programme, the strengthening of teachers, and the building of bases for practice, the vocational schools of Fuxin City have created favourable conditions for the combination of education and productive labour, enabling students to make rapid progress in general education, specialized theory and professional skills. A few of the schools have achieved self-sufficiency in funds through running bases for practice.

Factories and mines in Fuxin are keen on running vocational schools. They regard these as their bases for training their own specialized personnel. They said: "In the past, our new workers had to learn from the beginning, because they were unskilled and inexperienced. Vocational schools should have been started long ago."

The vocational schools open specialized subjects in accordance with the needs of economic development and employment. The students study the subjects mostly of their own choice. Therefore their enthusiasm is high and their progress rapid. A number of the students whose performance was poor at junior middle school have given a good account of themselves, to the satisfaction of their parents.

A teacher of Fuxin City's Commercial Secondary Vocational School teaches students of service trade to use abacus.

A chemical teacher of the Agricultural Middle School of the Cangtu People's Commune at Fuxin City's Mongolian Autonomous County explains to the students the change in indicator by acid and alkali.

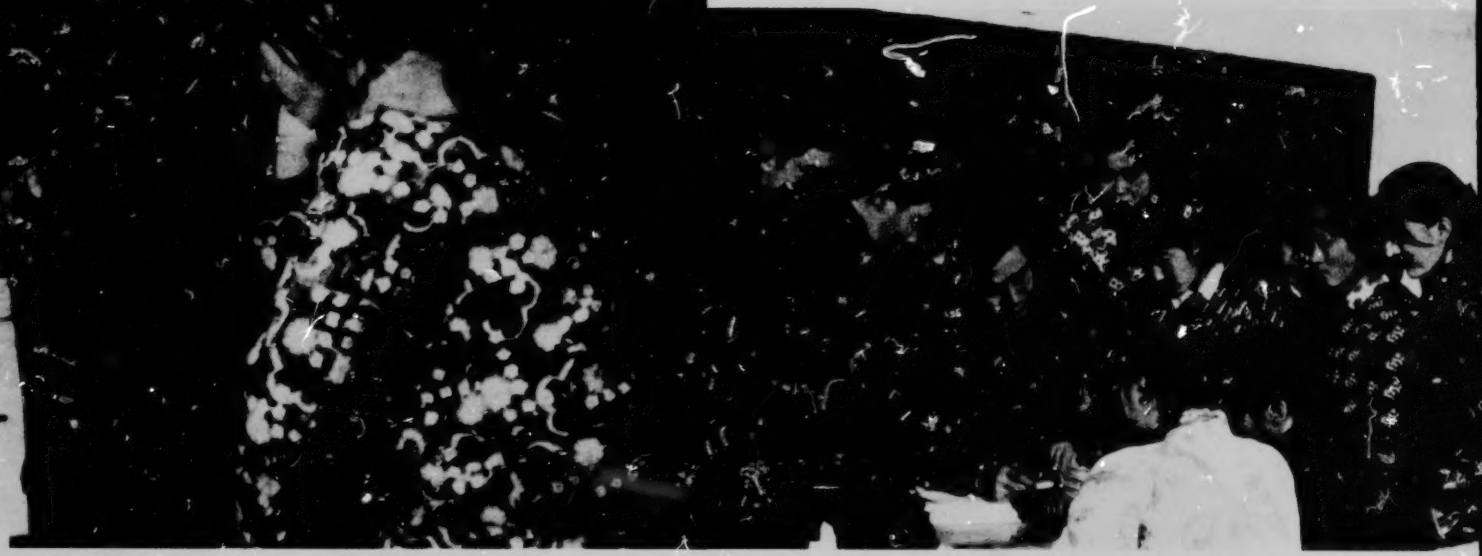
A teacher of a secondary sewing school lectures on human anatomy.

Nian Guangen, a stockbreeding technician and teacher of the animal husbandry school of the Aer Township Livestock Farm, lectures on pig anatomy.

Lin Wenyu, mining engineer and part-time teacher of the Secondary Coal Industry School of the Wulong Colliery, explains to the students the functions and characteristics of the hydraulic support safety cord of the multi-purpose coal extractor.

Qi Zhenyu, a teacher of the Agricultural Middle School of the Cangtu People's Commune, explains the use of high-pressure oil pumps.

A teacher of the Secondary Machine-Building Industry School of the Fuxin Mechanical and Electrical Equipment Repair and Assembly Plant gives an on-the-spot lecture on the principles of a machine.



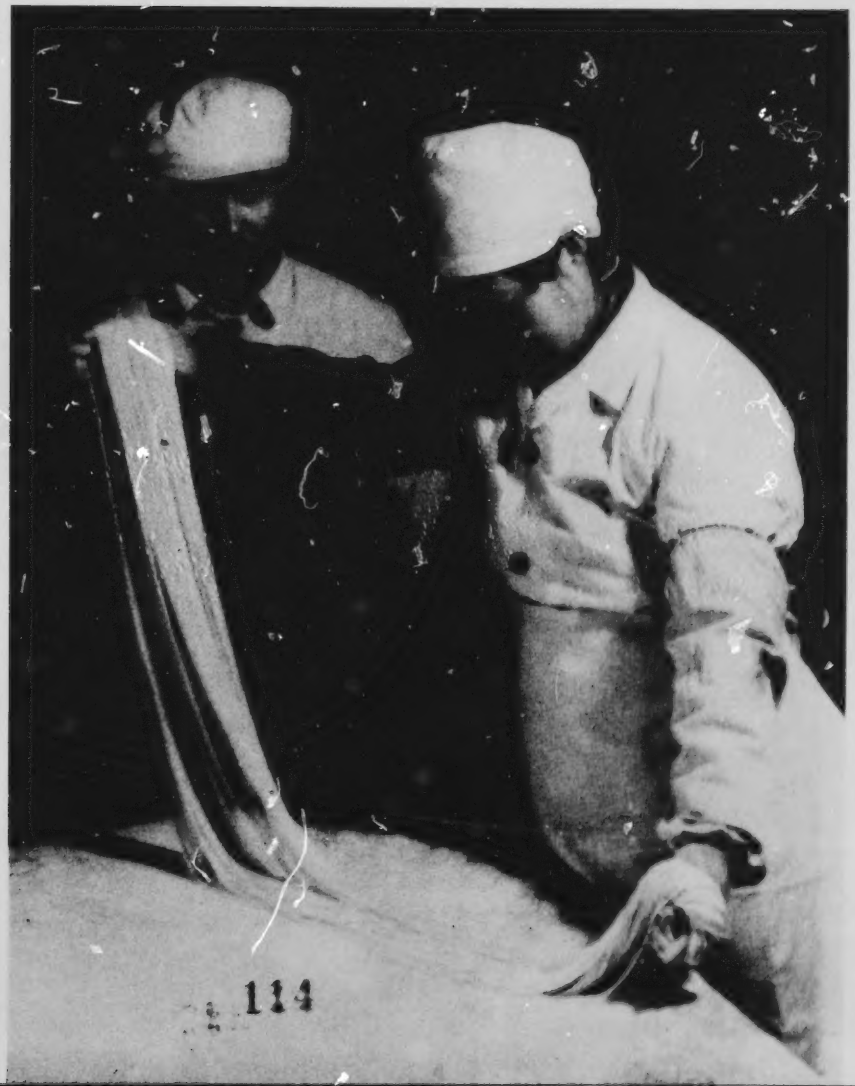
A teacher of the Secondary Coal Industry School lectures on the basic knowledge of electrical engineering.

Students of industrial arts of the Fuxin City No. 7 Middle School work on their painting assignment.

Students of the Fuxin City Secondary Sewing School learn tailoring.

"I love my future job," says Liu Yanrong, a student of the waitress training class.

Mu Fengying, a student of the noodle division of the cookery speciality, has reached the level of a third grade worker.



Students of food processing of the Secondary Vocational School of the Fuxin City Foodstuff Company make pastries and cookies.

Zhang Chunli, a student of cookery, makes roasted prawns. After a year's study, she has reached the level of a third grade worker.

Students of cookery of the Secondary Vocational School of the Fuxin City Foodstuff Company at practical work.

An Agricultural Middle School Loved by Peasants

ITUATED on the former Yellow River bed in the southwestern part of Shandong Province, the Agricultural iddle School of the Liangtidou People's Commune in oxian County is a school loved by the local peasants. When it s founded in the autumn of 1958, the school site was merely a ste where weeds grew in profusion and sands drifted erywhere. By adopting the principle of part-farmwork and rt-study and after going through various difficulties in terial supply and teaching, the school gradually developed d expanded. Now it has 6 senior classes, 1 art class and 1 nior class, with a total of 470 students and 70 teachers and ff. It also has school buildings of 272 rooms, 168.5 acres of nd and 86,000 trees of different kinds. A set of necessary ching facilities and equipment for agricultural experiment ovide good conditions for the combination of teaching with oduction. It has taken on a completely new look of vitality h luxuriant crops and dense trees.

The school's combination of ordinary middle school courses with agricultural knowledge aims to train technical and administrative personnel for agricultural production. To meet the needs of agricultural production at present and the future development of the countryside, the school has opened general education courses, such as politics, Chinese language, mathematics, physics, chemistry and biology, as well as courses of agricultural knowledge like farm power and machinery, cultivation of trees and orchard, crop heredity, breeding and cultivation, and soil and manure. At the same time, the school compiles supplementary teaching materials on the basis of its own experimental results, such as the *Plant Protection*, *Wheat Breedings*, *Cultivation of Soya Beans* and *Pruning of Fruit Trees*. Of the total course hours, 70 per cent are of general education and 30 per cent of agricultural knowledge. In a week, 5 days are for study, 1 day is for practice in production and 1 day for rest. In a year, 9 months are for study, 2 months are for productive labour and 1 month is for vacation.

The characteristic of teaching in this school is the com-

nation of classroom lectures with on-the-spot teaching and actice in productive work. Each of the 8 classes in the school is 2.5 acres of land with high- and stable-yield crops. The hool's farm, orchard, livestock farm and workshop are all aces where the students work and make experiments. It has ade arrangements with nearby production brigades and ctories for students to go and learn production skills there. ne students usually learn through productive work the nowledge which requires more practice. Some teaching pro-ammes are arranged according to farm seasons. For instance, ter a tree-pruning lesson, the students are taken to the chard to observe the difference between fruit trees which have en or have not been pruned and between those which have or ve not been well pruned. The teacher often couples his ctures with demonstration before actually letting the students actise by themselves in groups. During their 3 years' study in e school, the students have chances to take part in the whole ocess from the sowing to the harvest of the major local crops, that they learn not only the knowledge from books but also e skills for production.

This school adheres to the principle of teaching serving ricultural production. It makes extensive scientific experi-ents and takes the special problems in local agricultural oduction as its research topics, serving as an agricultural ientific centre in the region. An experiment team consisting of achers, technicians and students has been set up and each ass has its own experiment group. A network for scientific experiment has been formed by establishing direct contacts between the school's experiment team and scientific research institutions outside. Experiment assignments are often given to the school's experiment team and groups by the scientific research institutions or the people's commune. The teachers and students make experiments in their farm and orchard to study the local agricultural diseases or to popularize advanced new technique. By combining teaching with production in the past few years, they have already made experiments on 160 different strains of wheat, corn, soya beans, cotton, peanuts, vegetables and sweet-potatoes, have done research work on the cultivation of 120 different crops, fruit trees and Chinese medical herbs, and have provided the nearby communes and brigades with 500,000 kilogrammes of fine breedings. These scientific activities have not only increased the students' knowledge and skill but have promoted agricultural production in the region.

Many students trained in this school have become specialized personnel with an all-round moral, intellectual and physical development. Since its founding, the school has already run 74 ordinary and short-term training classes, with a total of more than 7,000 students. After graduation, most of the students have become farm machine operators, agricultural technicians, accountants, teachers, barefoot doctors and agricultural administrators. Some have joined the army, enrolled in the universities or become leading personnel, working for the modernization of the country in all spheres of endeavour.

A teacher of physics at work in a demonstrative experiment.

Students learn pruning.

A teacher of horticulture lectures on fruit tree cultivation in an orchard.

A teacher instructs students in their research project on an experimental farm.

Students rehearse for a theatrical show.

A physical culture class.

Education Is Combined with Productive Labour in the Primary and Middle Schools of Jilin Province

ILIN Province has 13,585 primary and middle schools with a total of 5,380,000 students. The principle of combining ucation with productive labour has been well implemented in is province. A total of 3,433 factories and 11,739 farms have en set up by the primary and middle schools in the province. oductive labour is arranged according to the teaching ogrammes, with due consideration both for the characteris-s of the students and for economic benefits. Students are quired to take part in productive labour for a period of time ch year in the school-run factories or farms. Experience in the st years proves this beneficial both to the improvement of aching standards and the all-round development of the udents. At the same time, this also financially subsidizes hool expenditure. Jilin's ways of doing things are as follows:

1. Combining teaching with productive labour to foster the udents' style of integrating theory with practice and ability of ing their knowledge comprehensively. All the teaching pro-ammes which are linked with the production in school-run ctories or farms are carried out on the spot. The teachers give ctures to the students with demonstrations so that the udents can see with their own eyes and can practise in actual oduction. They guide the students to use the knowledge they have learned while teaching new things needed in production. Therefore, the students can put their understandings of different subjects together to foster the ability of using their knowledge comprehensively. When the factory of the No. 15 Middle School of Jilin City produced silicon-carbon bars, the teachers and students worked out the proportion of different composition with simple equation and measured the resistance of the silicon-carbon bar with slide rule. They precisely calculated the intensity of pressure of the chemical solution according to the concept of pressure and intensity of pressure and Pascal's law, and the resistance of the silicon-carbon bar according to Ohm's law. Through the process of silicification, they have furthered their understanding of chemical formulas and mastered the skill for making up the composition. In this way, the students can have a good grasp of their knowledge.

2. Through productive labour, enabling the students to learn some knowledge about production and practical skills for their future work in industry or agriculture. Urban students learn one or two kinds of technique or skill in the productive work in school-run factories. Country students mainly take part in the work connected with agriculture, forestry, animal husbandry, fishery, farm machinery, carpentry and masonry.

After graduating from middle schools, therefore, many students become electricians, mechanics, carpenters, bricklayers, farm machine operators, paramedics and agricultural and forestry technicians without any further training.

3. Carrying out scientific experiments to develop the students' ability of independent thinking. To suit the needs of production and teaching, teachers and students carry out scientific experiments and technical innovations in school-run factories and farms, with the result that the students' intelligence is increased and the production promoted. The teachers of physics and chemistry in the No.41 Middle School of Jilin City guided the students in making high-quality copper and aluminium wires by using relevant knowledges after many experiments. They improved the product by filling in the cylinder nitrogen to expel oxygen so as to increase its vacuum degree. This experiment provided teaching materials for the teachers and new knowledge for the students.

4. Productive labour is an ideological education for the students in cultivating good habits of doing manual labour and fostering fine moral character. In productive labour, the students are not only asked to learn skills and finish their part of work, but are also taught to love manual labour, love science, work hard, observe discipline, take good care of public property, unite with and help others.

5. The manufacture of teaching facilities, which is an important part in the combination of education with productive labour, helps improve conditions for education. Making their own teaching facilities reduces school expenditure, benefits the teaching-production combination and helps improve teaching efficiency. Now the province's school-run factories produce 82 different kinds of teaching facilities. At the same time, every school also makes teaching aids for its own use.

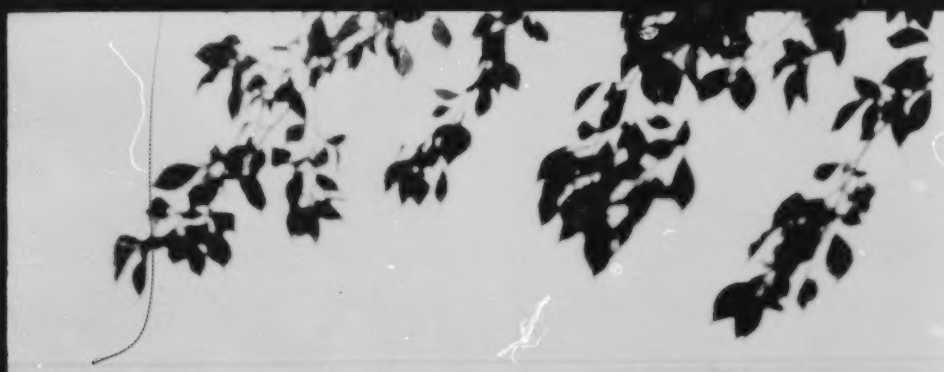
While laying stress on education, the schools organize teachers and students to start production which financially benefits the schools and helps improve the conditions for education. This is one of the purposes and achievements of the combination of education with productive labour. In each year from 1978 to 1980, the total value of output achieved by the province's primary and middle schools was 140 million yuan, grain output nearly 50 million kilogrammes and net income 60 million yuan. The greater part of the income is used for the development of education and the improvement of school conditions. Take Huide County as an example. It has 437 rural primary and middle schools with a total of 160,000 students, running 111 factories and 466 farms. Small tree farms and livestock yards have been set up in most of the schools. In 1980, the total value of output of the county's schools was 5.22 million yuan and net income 2.26 million yuan. With the help from the state, communes and brigades, and mainly with the income of school-run factories and farms, the county has built in the past few years 237,000 square metres of new school houses, bought large quantities of classroom furniture, teaching facilities, cultural and sports instruments and books, and has started a few welfare items, such as free tuition and fee in rural primary schools and free books and stationary in some of the primary shools.

The combination of education with productive labour benefits the development of primary and secondary school education in Jilin Province, improves the educational standards and fosters a new generation with ideals, moral character, knowledge and good health. At the same time, the school-run factories also supply the market with many of their products, such as silicon-carbon bars and weaving-wheels which are sold throughout the country, and straw-weaving products, embroideries and chopsticks which are marketed abroad. The fine grain seeds and tree seedlings bred by the school farms become very popular among the local communes and brigades.

A teacher explains the classification of chemical industrial raw materials and the principle of chemical reactions in a school-run factory to students of a rural school, the Yongji County No. 6 Middle School. The factory turns out colour fixer, plastic products, paint, water-proof powder, etc.

A teacher from a primary school of the Nanping Production Brigade, Helong County, explains to pupils the characteristics of a fine breed of soya beans in the experimental plot of the school-run farm.

126



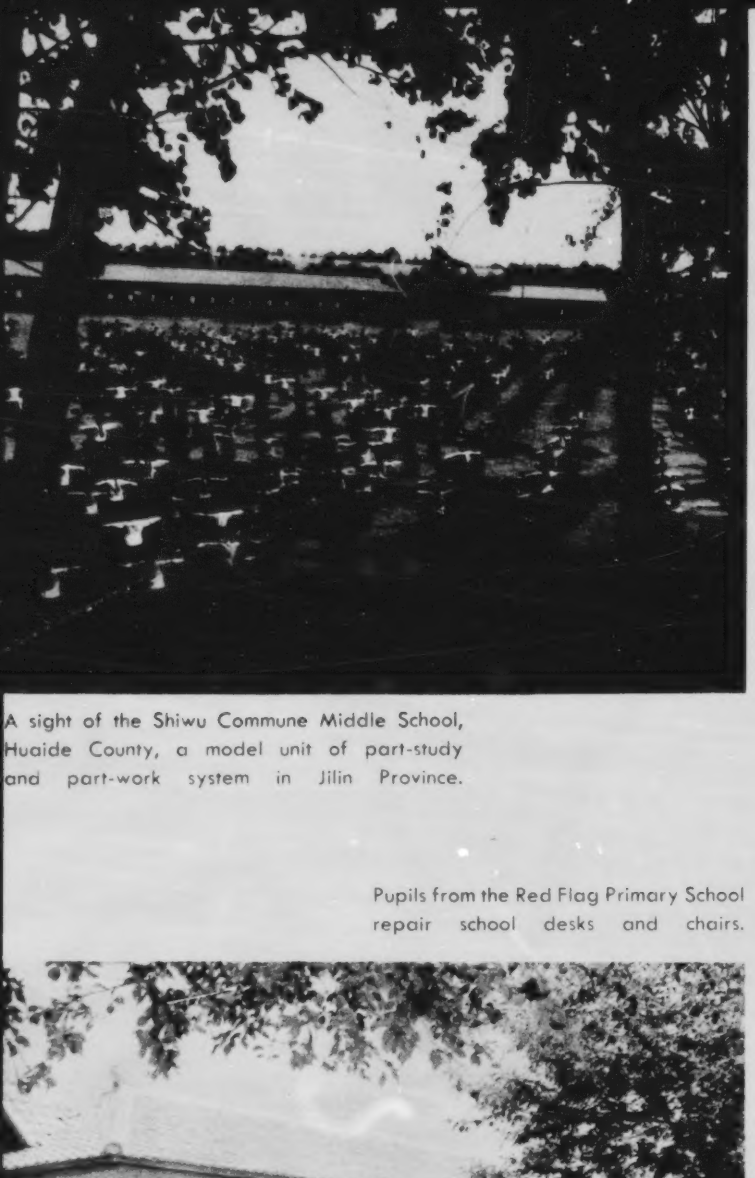
Students of the Xicheng Middle School for Koreans, Helong County, are encouraged to take part in paddy fields management and master rice cultivation skills.

Pupils from the Xinli Primary School, Xinzhan Commune, Fuyu County, happily study the growth of an improved stock of ducklings.

Pupils from the Red Flag Primary School, Jianshe Commune, Dehui County, earth up the trees they planted in a drive to form the habit of loving labour.

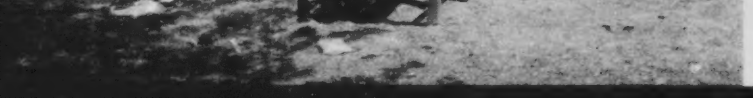
Students from the Dehui No. 1 Middle School conscientiously observe the growth of the cucumbers they planted.

Generators produced by the Dehui County No. 3 Middle School for use in demonstrative teaching.

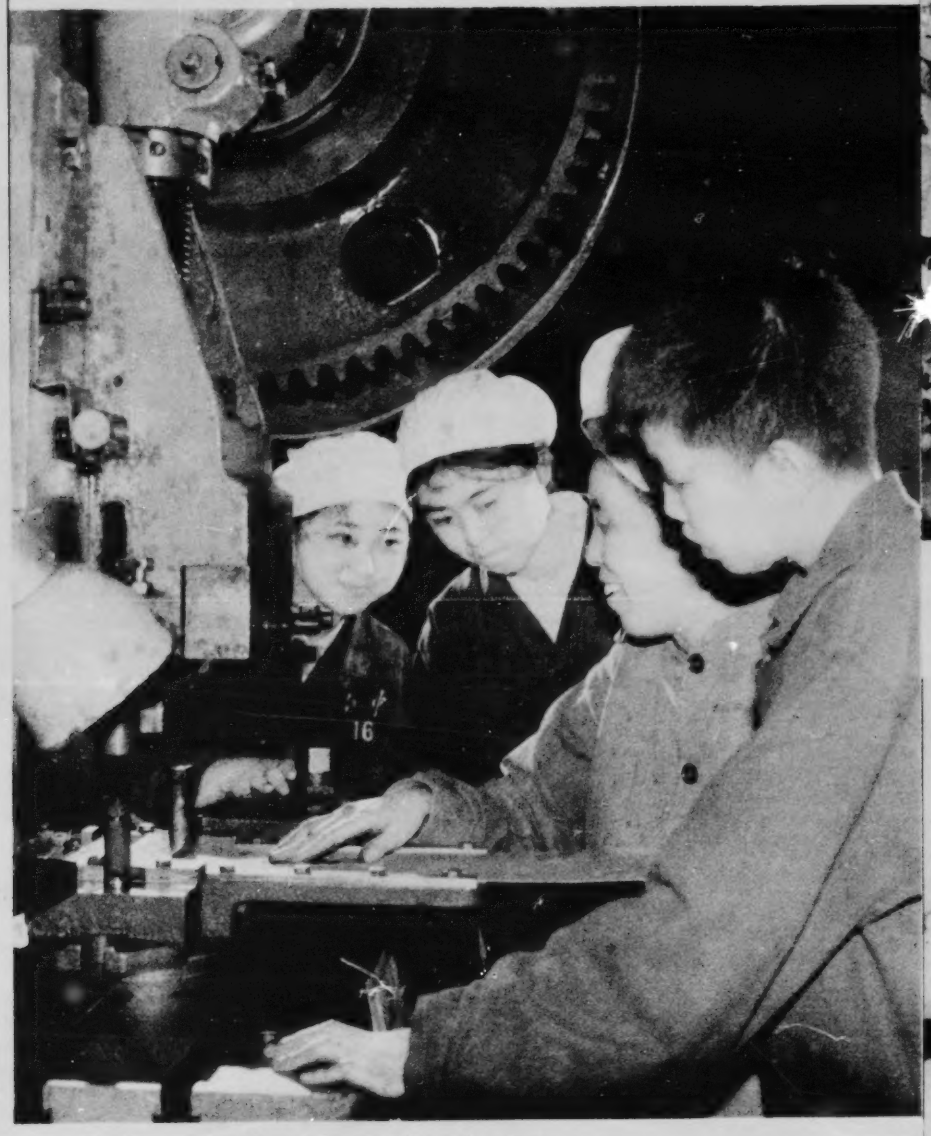


A sight of the Shiwu Commune Middle School, Huaide County, a model unit of part-study and part-work system in Jilin Province.

Pupils from the Red Flag Primary School repair school desks and chairs.



Poplars cultivated by teachers and students from the Qiangang Commune Middle School, Nongan County, after conducting experiments. These trees are suitable to the local climate and soil, their survival rate is high and their growth fast.



Teachers and students from the Changchun City No. 6 Middle School have found the method of calculating punching machine tonnage in their study of punching machine movements.

Growing vegetables in a plastic greenhouse built by the Dehui County No. 1 Middle School. The greenhouse provides teachers and students of biology with an all-season experimentation ground and the market with more vegetables.

St-9 oscilloscopes, one of the nine varieties of teaching aids produced by the school-run workshop at the Changchun City No. 10 Middle School.

An outside view of the laboratory of the Yingchengzi Commune Middle School, Jiutai County. The school's teachers and students of carpentry and masonry designed and helped build the laboratory. The construction fund and payment for the equipment came from the proceeds from work-study programmes.

Secondary Specialized Education

BEFORE the founding of the People's Republic, China's few vocational schools were mostly concentrated in a few large cities. After Liberation, the higher vocational schools taken over from the old government were changed to secondary specialized schools. In the wake of the development of economic construction, a number of new secondary specialized schools were set up. To date, secondary specialized education has expanded to form an important part of education in China. In the past 32 years, more than five million students have left the secondary specialized schools, including some two million graduates from secondary teacher training schools. Most of them have become backbones in all spheres of endeavour. During the "cultural revolution", havoc was wrought to secondary specialized education by Lin Biao and the "Gang of Four". The downfall of the gang gave secondary specialized education a new lease on life. In 1980, the 3,069 secondary specialized schools had a total faculty of 298,400, including 128,600 full-time teachers, turned out 410,300 graduates, and enrolled 467,600 new students, bringing the total number of students up to 1,243,000.

These secondary schools are under the direction of their specialized central or provincial, municipal or autonomous regional departments, with the guidance of the Ministry of Education and the educational departments of the provinces, municipalities or autonomous regions. Teacher training schools are under the direction of local educational

departments.

The secondary specialized schools offer 345 subjects in all, some of them added in recent years to meet the needs of national development. These subjects are connected with engineering, agriculture, forestry, medicine, finance, economics, law, physical culture, the arts, and teacher training.

The task of secondary specialized schools is to train "red and expert" secondary specialized personnel needed for socialist modernization, with all-round development morally, intellectually and physically. The students are encouraged to cultivate patriotism and internationalism and communist moral qualities, support Communist leadership, love socialism, and cherish the ideal of working for socialism and the people. They are required to attain the educational level of senior middle school students and, on this basis, to master the basic theory, knowledge and skills in their own fields.

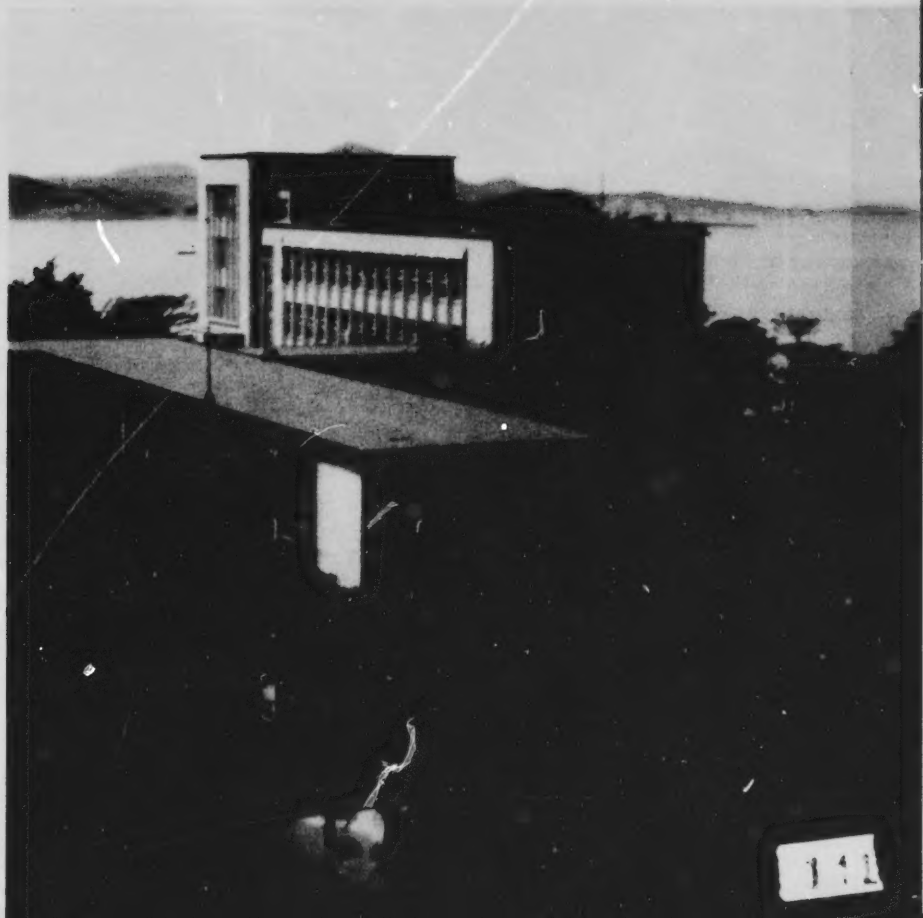
The length of study of the schools that enrol junior middle school graduates is four years (for certain subjects five or three years), while the length of study of the schools that enrol senior middle school graduates is two years (two and a half to three years for some of the subjects connected with medical science and engineering).

The schools offer courses in four categories: politics, general education, basic specialized courses, and special courses. The courses of the first three categories account for 75 per cent of the total hours and those of the last category 25 per cent. A total of 20 courses are offered for subjects related to engineering, agriculture, forestry and medicine. The time ratio between theory courses and field work is 7:3 in subjects connected with engineering, agriculture, forestry and medicine, and 8:2 in subjects connected with finance, economics and law. The students have a vacation totalling two months a year.

Engineering schools have their own factories and agricultural schools their own farms. Part of the field work is done in school factories or farms and the rest in regular factories, people's communes, and hospitals.

Tuition is free. Students of schools specializing in teacher training, coal mining, the arts, physical culture, nursing and midwifery are entitled to state grants. In all, 75 per cent of the secondary specialized school students are provided with grants by the state. Upon completion of their education students are assigned jobs by the government.

The campus of the Chengdu Hydropower School.



A building of the Fujian Arts and Crafts School.

140

141

Teachers and students of the Heilongjiang Veterinary Science School appraise the breeds of milk cows.

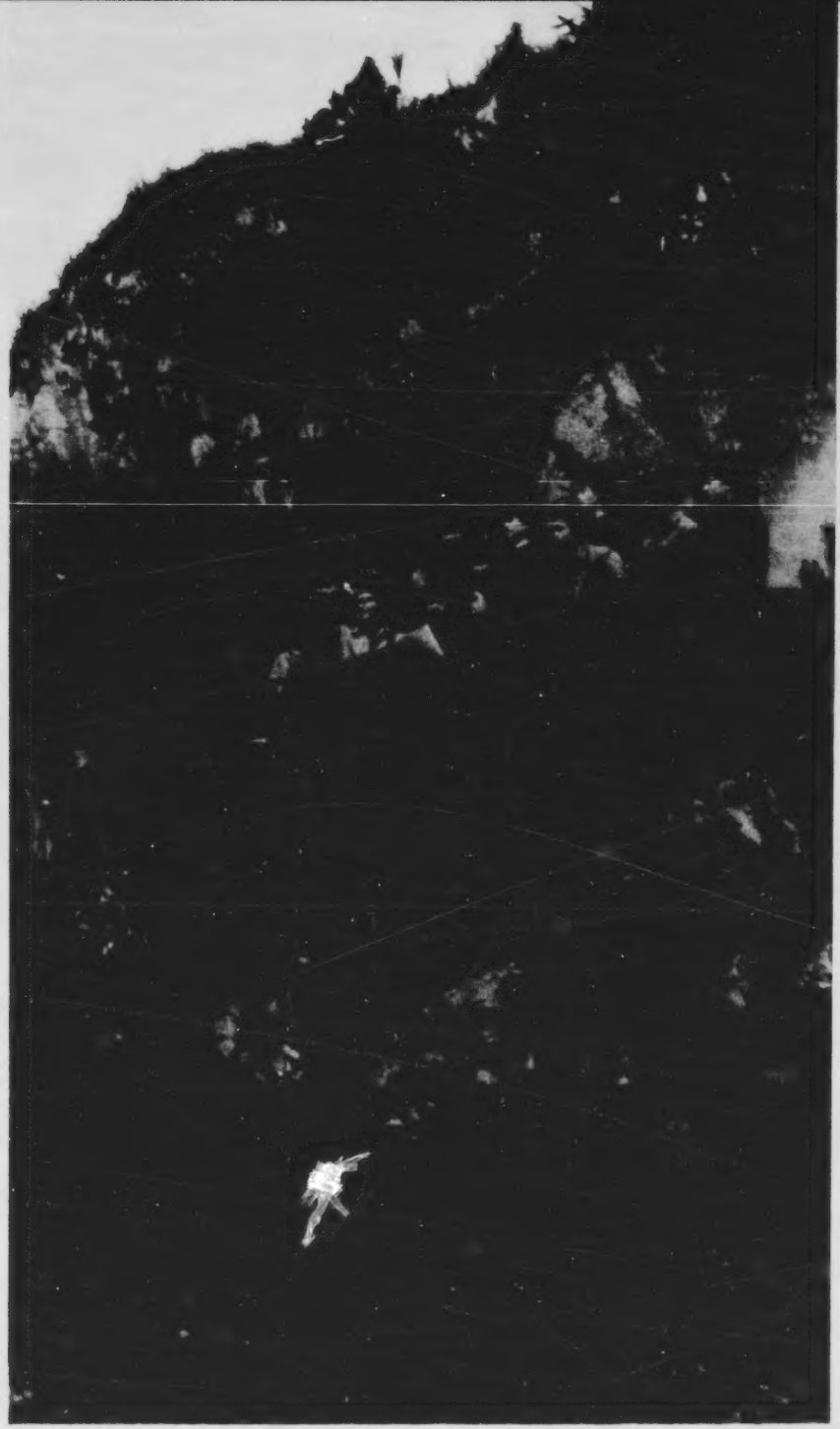
Students of the Jilin Railway Transport School do practical work in the transport laboratory.

Teachers of the Zhongkai Agricultural School in Guangdong teach in the spring sowing season at the school-run farm.

After several years' efforts, Li Chunlin *(centre)*, a 1976 graduate from the Beijing Agricultural School and an assistant technician of the Haidian District Agricultural Research Institute in Beijing, has successfully cultivated the haploid seedling of green pepper. Her treatise on this has been published in domestic and foreign publications.

A teacher of the Nanjing Machine-Building School explains the operation instructions of electronic computers to students.

Students of diesel locomotive of the Zhuzhou Railway Machinery School in a spell of practice at the Guangzhou Locomotive depot.



Students of geology of the Chongqing Petroleum School at field work.

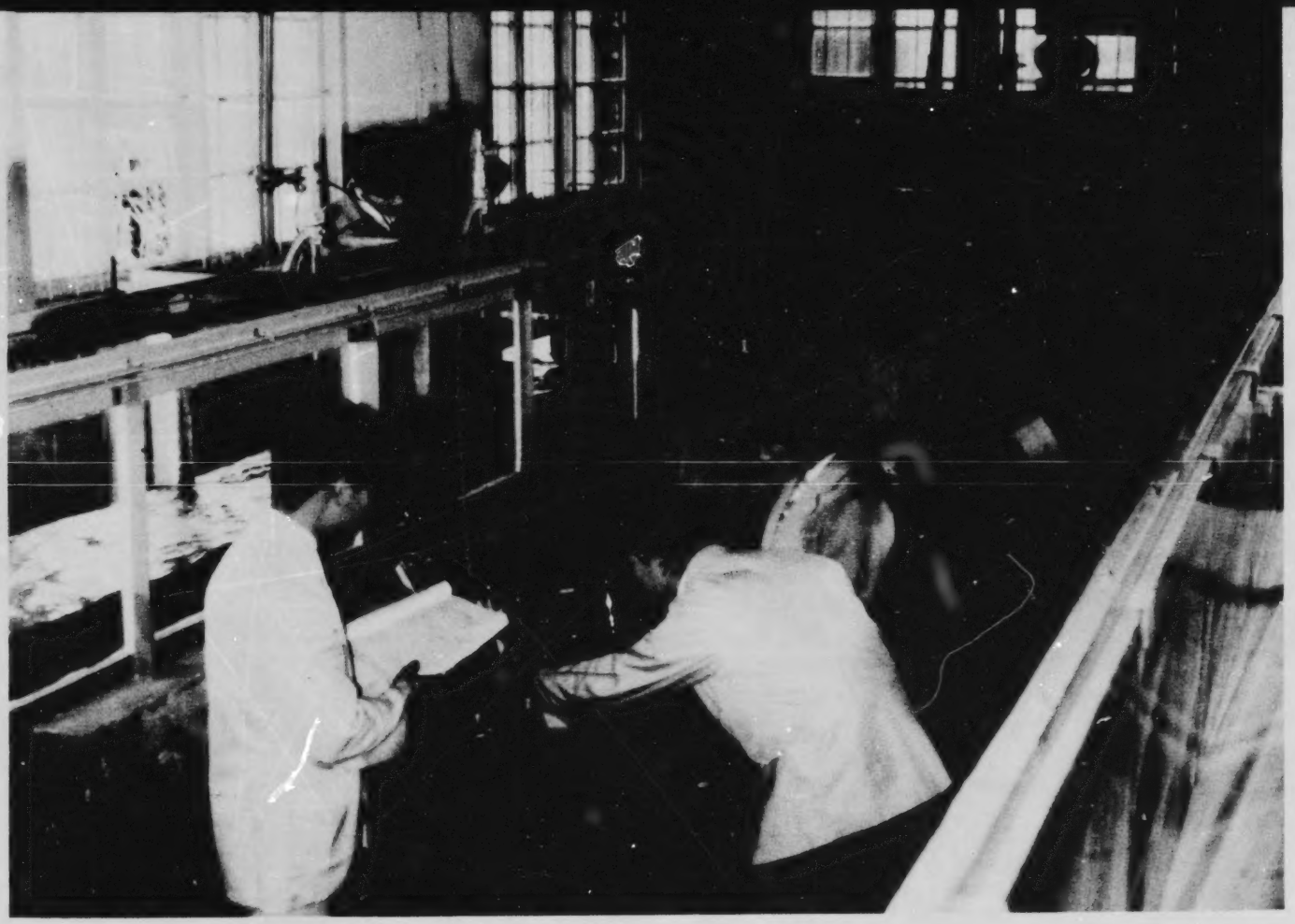
Students of the Liuzhou Medical School in Guangxi at internship.

Students of the Heilongjiang Supply and Marketing School assemble TV sets.

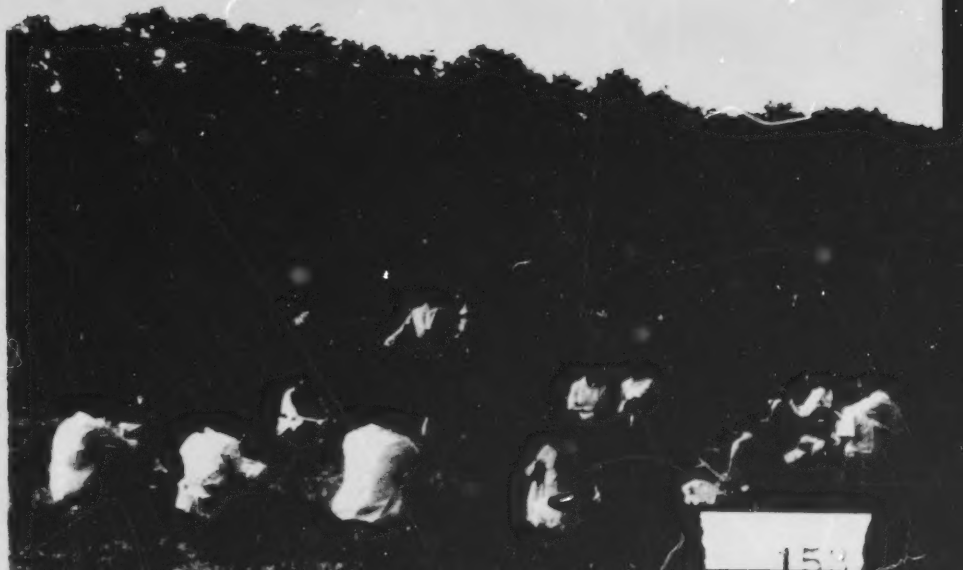
The sand table of the hump yard of the Shijiazhuang Railway Transport School.

Jin Zhenyu is a "three good" student (good in health, study and work) of the Heilongjiang Medical School. She won five championships at the Ice Sports Meet of the Haerbin City Secondary Specialized Schools.

Graduates of machine-building of the Xiangtan Electrical Machinery School in Hunan defend their graduation projects.



Students of the Fuzhou Hydropower School experiment with damming water flow.



After hours on the Nanjing Electric Power School campus.

A swimming lesson for students of the Heilongjiang Communications School.

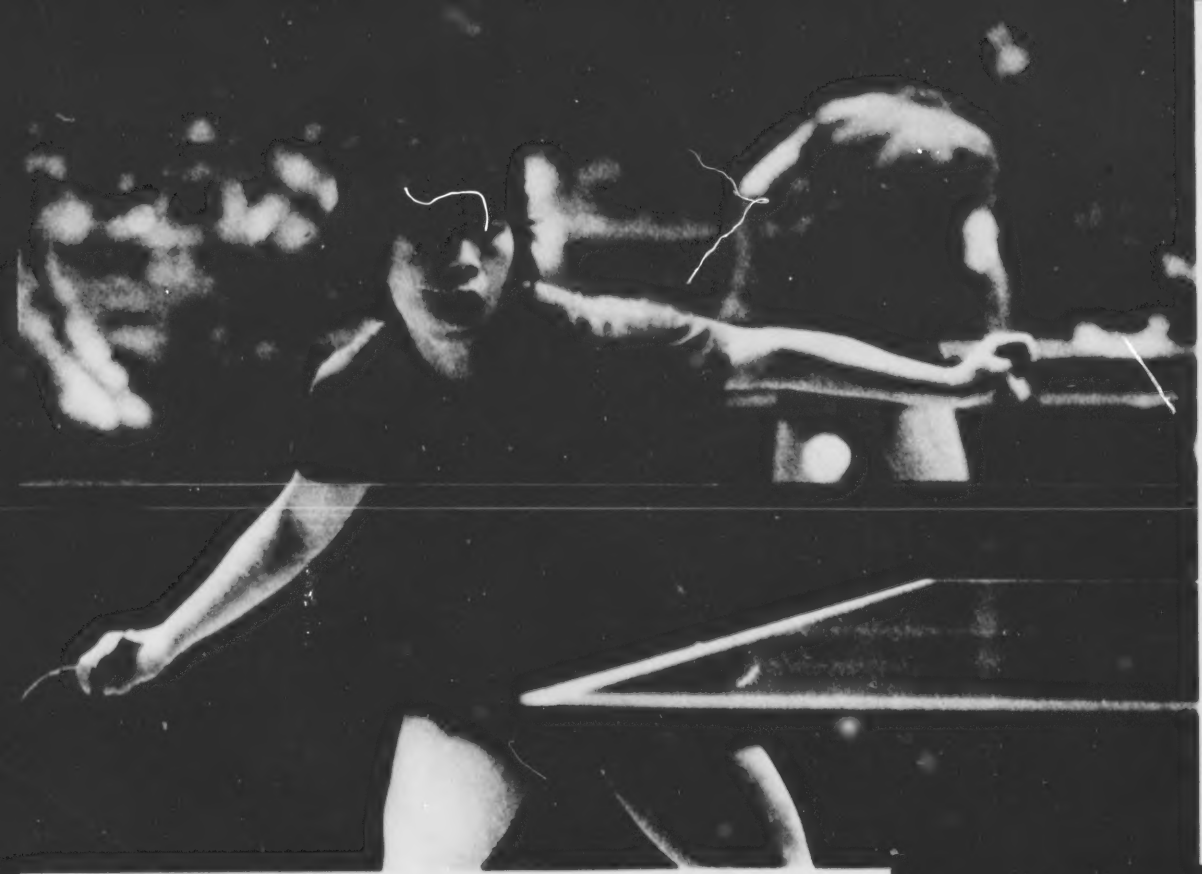
Liu Dezhou, head of the Mechanics Teaching Group of the Guangdong Petroleum School, has been commended by the Ministry of Petroleum as a model worker for his devotion to education.

Yuan Longping (*left*), a teacher of the Qianyang Agricultural School in Hunan, is the first person to win a Special Invention Award since Liberation for cultivating hybrid rice of long-grain variety.

Members of the Political Economy Teaching Group of the Hubei Banking School discuss methods of teaching.

Yi Tongpei, a teacher of the Sichuan Forestry School, has filled in the gaps in bamboo research with his discovery of two new genera and 25 new varieties.

Wang Zejian, a teacher of the Fujian Arts and Crafts School, at work. Wang Zejian is also a council member of the All-China Sculptors' Association and the China Industrial Arts Society. His porcelain sculptures of the two famous ancient women of letters, Cai Wenji and Li Qingzhao, have been listed by the state among the best works.



The noted table tennis player Zhang Deying in action. A 1968 graduate from the Shanghai Physical Culture School, Zhang Deying has won a total of 20 gold medals in international tournaments, and was listed as the No. 1 seeded woman player at the 36th World Table Tennis Championships.

Wang Weiming, a graduate from the Jingdezhen Ceramics School, won a third-class award at the 1980 Ceramics Design Review for his new formula for ***ying qing hua you*** (misty blue glazed porcelain).

Huang Xushen, principal of the Shaanxi Water Conservancy School, gives an English lesson. An educationist of 37 years' standing, Huang has been chosen as an advanced worker on many occasions.

Yang Zili (*centre*), chief engineer of the Jining Subbureau of the Hohhot Railway Bureau, is a 1956 graduate from the Zhengzhou Railway Machinery School.

Students of the Chengdu Aviation Industry School make metallographical studies.

Adult Education

THE Chinese Government has always paid attention to adult education, regarding it as an important part of China's education. *The Common Programme of the Chinese People's Political Consultative Conference*, which was issued soon after the founding of the People's Republic of China, stipulated that more efforts should be put into the spare-time education of the working people and the on-the-job education of the cadres. The First National Conference on Workers' and Peasants' Education in 1950 clearly declared: "The Central People's Government takes the development of workers' and peasants' education and the creation of new intellectuals of worker and peasant origins as its most important task." National conference on workers' and peasants' education were held to discuss plans for adult education. In response to the call for a full development of spare-time education issued in the *Report on the Work of the Government* at the Fifth National People's Congress, the Ministry of Education and All-China Federation of Trade Unions jointly held a national conference in 1979 on the education of workers and staff. In the same year, the Ministry of Education convened a national conference on peasants' education. The Central Committee of the Chinese Communist Party and the State Council issued in February 1981 the *Decisions on Strengthening the Education of Workers and Staff*, pointing out that the education of workers and staff is a guarantee for the steady development of the national economy and must be well planned and implemented as early as possible since it has an important bearing on China's modernization. In late March of the same year, another national conference on the education of workers and staff was held by the State Council to implement these decisions.

Through adult education in the past 32 years, 137 million people have become literate, 33 million have graduated from spare-time senior primary schools (equivalent to the 6th grade of ordinary primary school), 4,890,000 from spare-time secondary schools and 1,100,000 from spare-time colleges or universities.

The students of adult education come from all walks of life and their study conditions vary. Therefore, different forms of education are needed in the principle of combining production with study in accordance with local conditions. To eliminate

illiteracy, winter schools, night schools, and door-to-door teaching groups for housewives have been set up; spare-time primary and secondary schools are run by local governments or by factories, government institutions, social organizations, state farms, rural people's communes, production brigades and teams; and high-level adult education is provided by open universities on television, correspondence and night colleges run by full-time universities, independent spare-time universities and factory-run universities for workers and staff. Some of the workers and staff take courses in off hours while some study full time with pay. According to their needs, they can systematically study all the courses of a certain subject, or choose one or two courses, or attend short-period training classes to learn new techniques. In 1980, 1,550,000 people studied in colleges or universities for adult education (including colleges of advanced studies for teachers), 8,000,000 in spare-time secondary schools, 16,460,000 in spare-time primary schools and 5,380,000 became literate.

In order to strengthen the leadership of the education of workers and staff, a national committee in charge of the education of workers and staff has been established as a subordinate organization under the State Council. Its tasks are to formulate policies and make plans for the education, check up on their implementation and co-ordinate the work of different departments. The Ministry of Education also has a special bureau which directs the teaching and administrative work of workers' and peasants' schools, formulates relevant policies, compiles textbooks and train teaching personnel. The Ministries of Industry, Communications, Finance, Commerce, Agriculture, Forestry and Public Health, Commission for Capital Construction and other government departments are also responsible for the education of the workers and staff in their own departments, making plans and solving practical problems in running schools. Local governments at all levels even down to the people's communes all have special organizations or persons taking care of adult education. The trade unions, Youth League, women's associations, societies of science and technology and other social groups are also active in doing their part for adult education. A National Adult Education Association has been established to pool the efforts of all quarters for adult education, and subordinate associations have been set up in some provinces and cities as well.

At present, China still has 100 million illiterates and semi-illiterates. Nearly 200 million young people who did not receive enough education in the ten years of turbulence are very much in need of secondary education. Millions upon millions of people want to continue their study in spare-time universities, the open universities on television or correspondence schools. Therefore, adult education must have a great development in the 1980s. We must strive to completely eliminate illiteracy and semi-illiteracy among the people, making them able to read, write and calculate, to raise the cultural and technical standards of workers and staff up to the secondary level, increasing the number of skilled workers at high or medium levels, and to develop higher adult education, training more specialized personnel for China's socialist modernization.

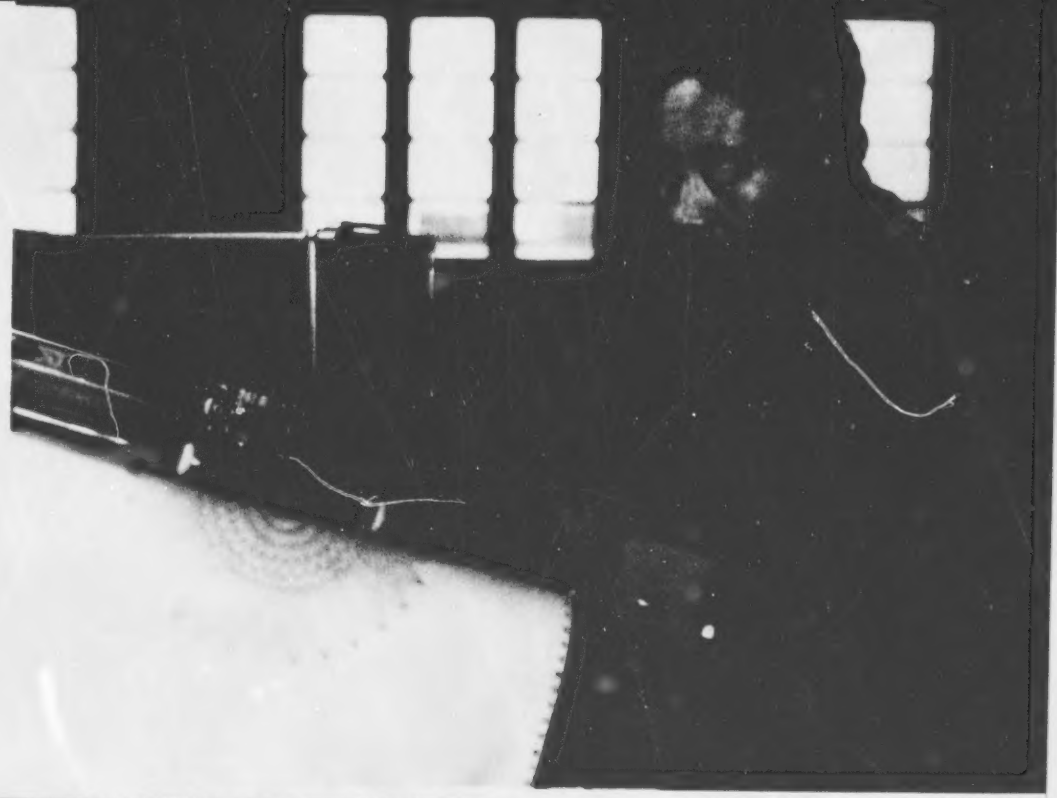
A teacher of English of the Central Open University on Television prepares her lessons.

A test of chemical power source by students of solid state physics, Tianjin Institute of Advanced Studies of Science and Technology.

Students of the Beijing Open University on Television conduct chemical experiment under the guidance of a teacher.

Students of the Tianjin Institute of Advanced Studies of Science and Technology renovate a hydraulic pressure machine.

Students of the Tianjin Institute of Advanced Studies of Science and Technology hold a discussion after class.



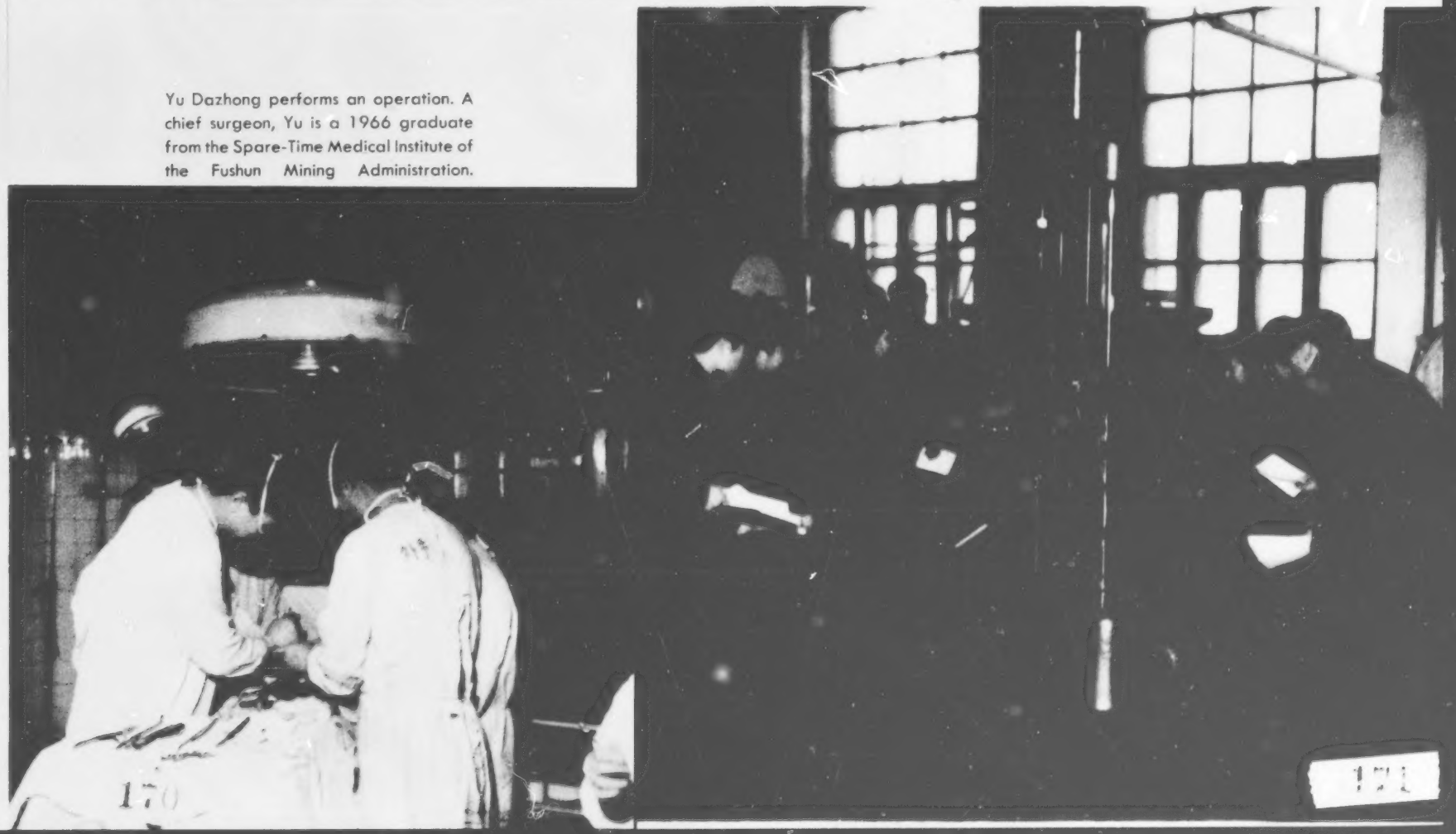
Fang Mingshan, a 1962 graduate from the Shanghai Spare-Time Industrial University, and the Xy-10 recording instrument, a result of his scientific research. A model worker of Shanghai, Fang is a deputy to the Fifth National People's Congress and associate chief engineer of the Shanghai Research Institute of Instruments and Meters.

A teacher of the Department of Machinery, Shanghai Spare-Time Industrial University, discusses graduation project with students.

Students of electrification and automation of the Industrial Institute of the Fushun Mining Administration conduct an experiment on industrial electronics.

An experiment of mechanics of materials by students of machine-building and repairing of the Industrial Institute of the Fushun Mining Administration.

Yu Dazhong performs an operation. A chief surgeon, Yu is a 1966 graduate from the Spare-Time Medical Institute of the Fushun Mining Administration.

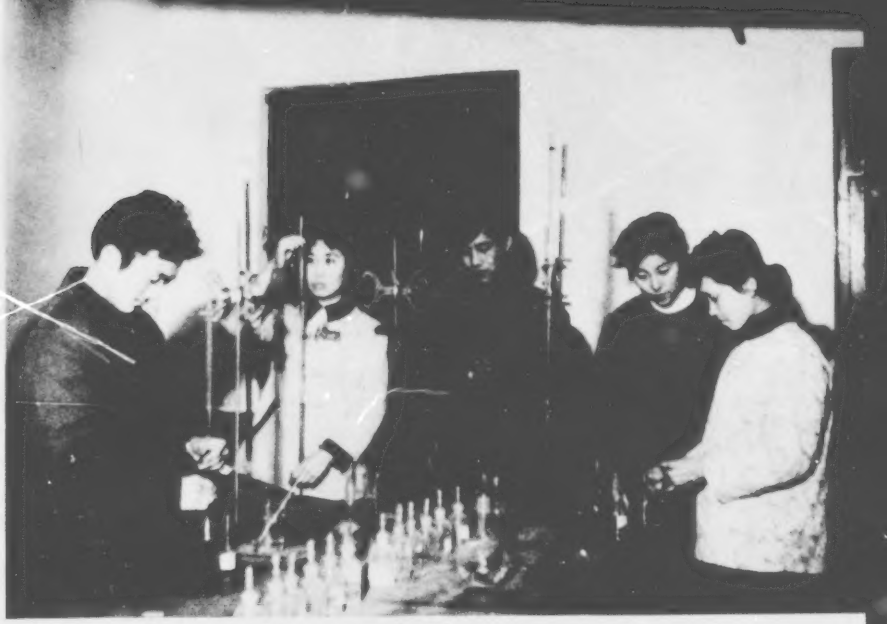


Students of the Night School of the Haerbin Industrial University design machine parts.

An experiment of electric circuit by students of electronic computer application of the Nanjing Radio Factory Workers' University.

A semi-automatic hydraulic pressure cutter designed and built by students of machinery of the Nanjing Radio Factory Workers' University during their graduation field work. It has raised work efficiency 8-fold, ensured the quality of products and reduced labour intensity.

A class of electronic circuit in session for students of radio communications at the Nanjing Radio Factory Workers' University.



Students of the junior middle school chemistry class at Qingdao's Sifang District Cadres' and Workers' Spare-Time School make experiments with the help of a teacher.

Students of accounting at Shanghai's Putuo District No. 1 Workers' Spare-Time Middle School working on their assignments.

A teacher of the Peasants' Spare-Time Junior Middle School of the Ganchuan People's Commune, Bazhong County, Sichuan Province, relates to students his experience in cultivating apple trees with a yield of 500 kg each.

Students of the Peasants' Spare-Time Technical School of the Niudu People's Commune examine the wool length, gin turnout, etc. of cotton.

A teacher of the Peasants' Spare-Time Technical School of the Niudu People's Commune, Linyi County, Shanxi Province, shows students how to make soil nutrition analysis.

Students of the Peasants' Spare-Time Junior Middle School of the Ganchuan People's Commune inspect the growth of the root system of hybrid rice.

Students of food grain at the Peasants' Technical School of the Leibei Production Brigade, Dali County, Shaanxi Province, examine the growth of the root system of wheat before its turning green.

A math lesson at the Peasants' Spare-Time Primary School of the Chaoyang Production Brigade of the Changan People's Commune, Hengshan County, Hunan Province.

Qumusuobu, a shepherd of the Haguo Production Brigade of Xide County, Liangshan Yi Autonomous Prefecture, Sichuan Province, studies a literacy primer.

Adizayi *(first right)* and Niukuazhemo *(second right)* of the Haguo Production Brigade engage in scientific selection of fine potato breeds.

After attending a literacy class, commune members Jikeluoniu and Axijiha of Xide County are now able to read the *Liangshan Daily*.

Education for the Blind and Deaf-Mutes

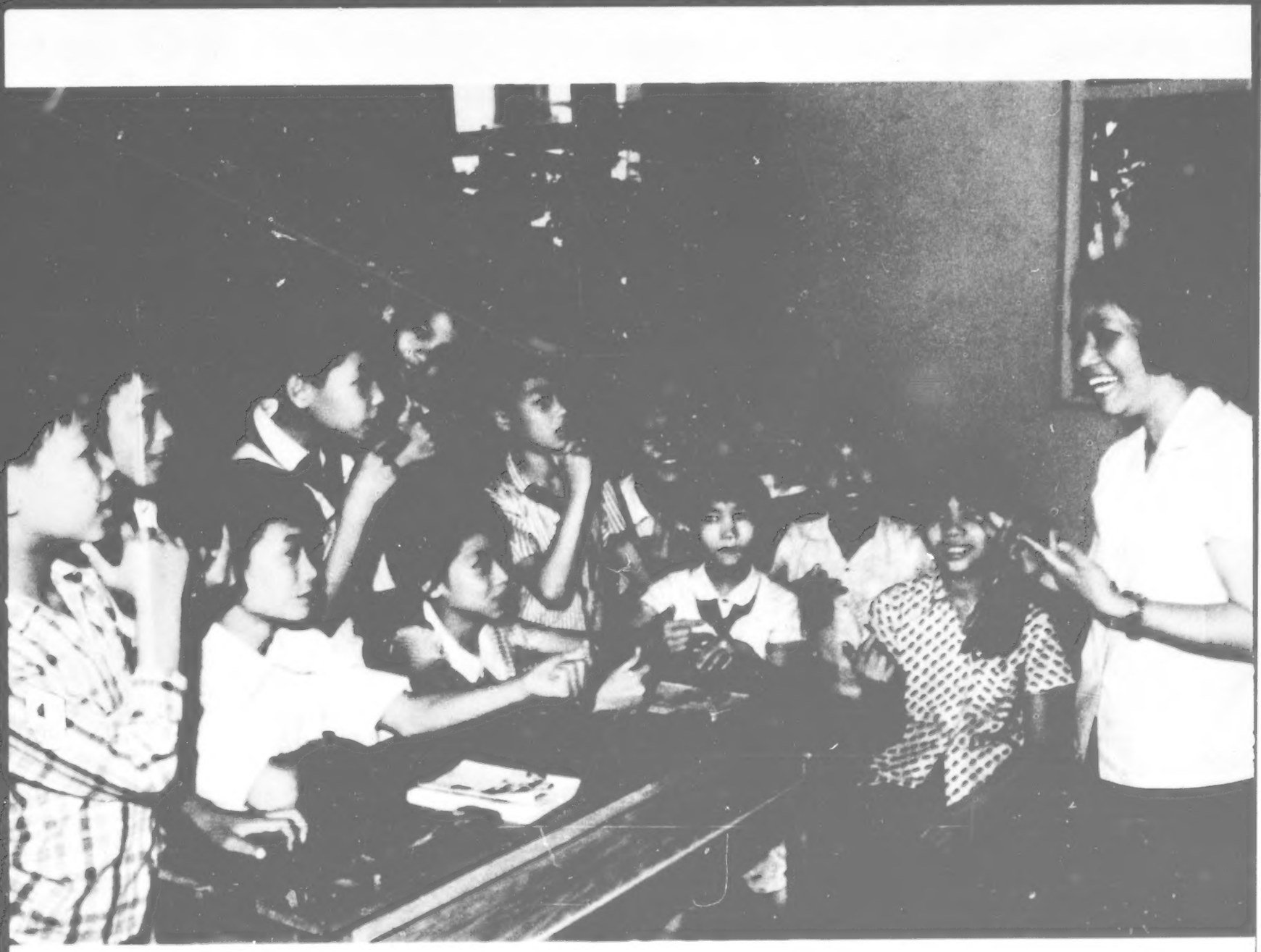
EDUCATION for the blind and deaf-mutes in China began in the 1880s. Before Liberation, these handicapped people were looked upon as "useless persons". In 1949, China had only about 40 schools for the blind and deaf-mutes, falling far short of the demand.

After the founding of the People's Republic, the Communist Party and the People's Government attached great importance to the education for the blind and deaf-mutes, regarding it as the duty of the state to enhance their educational level and social status. As early as 1951, one of the Central People's Government documents stipulated: "The People's Government at all levels should set up special educational establishments for the deaf-mutes, the blind and other handicapped people and provide education for children, juveniles and adults with physical defects." There are 292 schools for the blind and deaf-mutes, with 33,100 students and a faculty of more than 8,000. The number of students admitted has increased steadily in recent years.

The task of these schools is to help students develop morally, intellectually and physically and acquire general and scientific knowledge and professional skills, and train them to become builders of socialism. In addition to courses of ordinary schools, the schools for deaf-mutes offer special courses, such as daily conversation, movement to music rhythm, narration and training in hearng. For students above the fifth grade, vocational and technical courses are offered, such as fine arts, carpentry, ironwork, tailoring, knitting and basketwork.

To train students to be deft of hand, the schools for blind children pay moreattention to handwork course than ordinary schools. The vocational courses for junior middle school level students generally include massage to train them to use this skill for the benefit of people's health.

Oral method is used in teaching deaf-mutes, supplemented by sign language and finger spelling. Attention is paid to training in the use of the written language. The schools for the blind use the new braille with the international alphabet and using the pronunciation of the standard Chinese "common speech". The textbooks are compiled and published by the government.



A teacher of a school for deaf-mutes in Guangzhou talks with pupils by sign language.

A teacher of the Beijing No. 1 School for Deaf-Mutes helps a pupil with speech.

A math lesson for first grade pupils, Chongqing City School for Deaf-Mutes.

A physics class in session at a Beijing school for the blind.

A teacher of the Beijing No. 1 School for Deaf-Mutes coaches students in basketball.

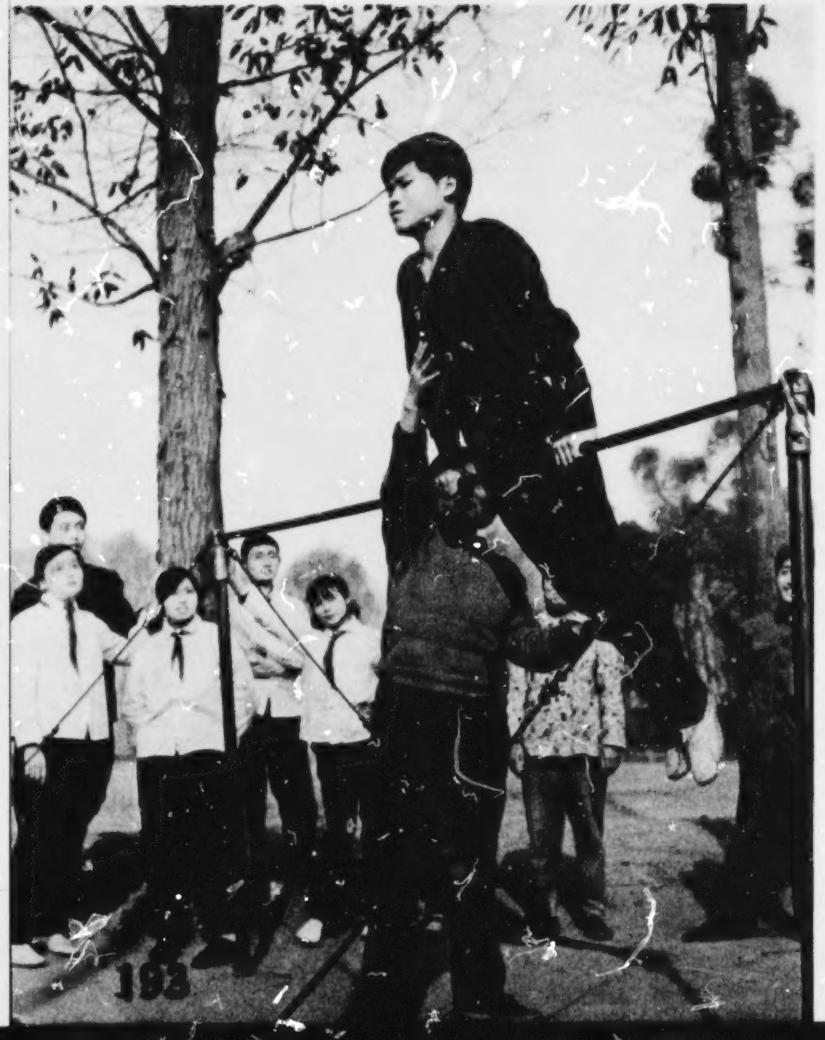
Students of a school for the blind in Shanghai practising high jump.

A girls' choir of a Chongqing school for the blind.

191

At a Shanghai school for the blind — "Let's have a song."

Students of the Liaoyuan City School for Deaf-Mutes in Jilin work in the school-run factory.



Children of a Chengdu school for the blind practise on the horizontal bar.

Contents

Education in China 4

Appendices: Statistic Tables of Schools of All Levels and Types

Advanced Areas in Popularizing Primary Education

Yangyuan County's Way of Popularizing Primary Education 31

Taojiang County's Experience in Making Rural Primary Education Universal 39

Take the Road of Integrating Education with Productive Labour

Research and Teaching Benefit Each Other in Beijing Medical College 46

Beijing Agricultural University Combines Teaching, Scientific Research, Production and Popularization 50

Education Is Combined with Productive Labour in the Department of Biology, South China Teacher Training College 54

Education in Productive Labour in Nankai Middle School 61

Training Work Reserves with Culture and Technique and Capable of Actual Operation in the Secondary Vocational Schools in Fuxin City 66

An Agricultural Middle School Loved by Peasants 74

Education Is Combined with Productive Labour in the Primary and Middle Schools of Jilin Province 78

Secondary Specialized Education 86

Adult Education 99

Education for the Blind and Deaf-Mutes 111

EDUCATION IN CHINA
(I)

Compiled by the *Education in China* Group of
the Ministry of Education, People's Republic of China

Published by the People's Education Publishing House
Printed by the Foreign Languages Printing House

BEIJING 1981

196